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Hunterian Lecture

ON

BRIGHT'S DISEASE IN SOME OF ITS CLINICAL ASPECTS.

Delivered before the Hunterian Society on Oct. 13th, 1915,

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GENTLEMEN,—An invitation to deliver a Hunterian lecture is a great compliment. I appreciate the honour highly, and I value it all the more when I read the list of those distinguished men whose names are inscribed upon the roll.

BRIGHT'S INVESTIGATIONS ON KIDNEY DISEASE.

In the choice of Bright's disease as the subject there is a historical appropriateness. The year 1915 is a sort of centenary in relation to Bright's disease, for it is exactly 100 years ago that Richard Bright began the work which was to make him famous.

In 1827, after, as he tells us, 12 years' study, he published his paper on Dropsy. In it he showed that in many cases of dropsy there were marked lesions of the kidney, the kidneys being large and soft, and that in them the urine was albuminous or coagulable by heat. He illustrated the paper by some excellent coloured drawings, which could hardly be improved on nowadays.

Carrying on his investigations for the next ten years from another point of view—viz., that of albuminuria—in 1837 he published another important paper, in which he showed that in many cases of albuminuria, in which there was and had been no dropsy, these were also kidney lesions, and that the kidneys were then small, shrunken, and hard.

These are the two groups as defined by him, which were subsequently called, in his honour, acute and chronic Bright's disease. With the large soft kidney he showed that the dropsy was well marked and the symptoms acute, and that with the small, hard kidney there was usually no dropsy, and the symptoms were often absent or indefinite. Clinically and anatomically, therefore, the two groups were distinct. Nor could Bright satisfy himself that they stood in any definite relation to one another.

So far as Bright's observations extended his work was complete, and subsequent observers did little more than confirm his conclusions. Some years later the view was dogmatically stated, notably by Frerichs, that the small kidney was simply the later stage of the large, but his statements were mere assertions, and entirely unsupported by clinical, or indeed any, evidence.

The term "Bright's disease" is nowadays often loosely applied to various forms of kidney disease. It should be strictly confined to the two groups which Bright described. Practically we now adopt this classification. The acute form with the large, soft kidney we now call acute nephritis, and the chronic form with the small, hard kidney we name granular kidney.

Bright's disease has now become a household word, but it is gradually becoming synonymous in the popular mind with the chronic form. It is a name which causes great alarm, for it is taken to imply an incurable kidney disease, resulting in serious illness and premature death.

No. 4812.

Bright made a real discovery. It depended on the combination of accurate clinical and pathological observation, and his classification, call we the different forms by what name we please, cannot be improved on.

Wilks wrote in the Guy's Hospital Reports for 1877 as follows:—

> I think it may be safely said that dropsy must have been recognised as long as man had been seen to succumb to mortal disease, and also that for more than a century the urine was known to be albuminous in certain forms of this complaint, and for as long a period that persons died with symptoms of uræmia, where the kidneys were small and granular. It is clear, however, that renal disease was not recognised as an important malady until Bright's essays appeared or he would not have been hailed at once as a discoverer and the malady called after his name. He systematised and placed the disease on a satisfactory foundation, which was equivalent to having discovered it. He first showed there was a common disease amongst us, which was to be recognised by certain definite methods, and more than this that there were varieties of it. In this the merit of his discovery seems to consist.

Since Bright's time much work has been done in the study of both the acute and chronic forms, but it has been especially upon the latter, granular kidney, as it is now usually called, that interest has centred during the last half-century.

In this connexion an important advance was made when Gull and Sutton in 1872 drew attention to the widespread arterial changes which were associated with granular kidney, to which they gave the name "arterio-capillary fibrosis." The exact nature of the arterial change, whether muscular hypertrophy or fibrotic degeneration or both in varying degree, was the subject of active controversy for some years, and cannot be said to be settled yet.

The problem was further complicated by the study of arterial pressure. Upon the questions of the relation of this increased pressure to the arterial change, and of both to the kidney lesion, opinions are still almost as strongly divided as ever. Recently the view that raised arterial pressure is necessarily of renal origin has been actively challenged. Professor Clifford Allbutt has suggested the term "hyperpiesis" to indicate those cases of persistent high arterial pressure which are not associated with renal disease.

CLASSIFICATION.

In the remarks which follow I shall adhere strictly to Bright's original classification. Bright's disease I shall hold to consist of the two forms only which Bright originally described.

1. Acute Bright's disease, or what we now call acute—or acute parenchymatous—nephritis, an inflammatory affection with well-marked clinical symptoms and course.

2. Chronic Bright's disease, or what we now call granular kidney, a degenerative, non-inflammatory affection with few or very indefinite clinical symptoms.

Further, I shall maintain that there is no established relation between these two forms—in other words, that the chronic form is rarely, if ever, the later stage of the acute. That they are, in point of fact, entirely separate and distinct diseases.

The large white kidney, which we now usually speak of as chronic parenchymatous nephritis, Bright knew to be the later stage of acute nephritis, as many of his figures show. It belongs, therefore, to the category of acute Bright's disease, and not to that of chronic. Confusion might be avoided if we called it long-standing instead of chronic. The term "chronic" has a double meaning in

medicine. It may be used in reference merely to duration, and it is then only another way of expressing the fact that the affection has lasted some time. But it may also involve the pathological theory that long-standing acute inflammation ends in interstitial fibrosis, which as a general proposition is certainly not true. Facts and theories in medicine should always be kept distinct and terms avoided which confuse them, for even when the facts are right the theories may be wrong.

The general features of each form of Bright's disease are so familiar that I shall pass them over and deal only with certain points which appear to me either new, important, or interesting.

ACUTE BRIGHT'S DISEASE.

Acute nephritis is a truly inflammatory affection. It is not generally recognised that in the early stages it is attended with definite signs of fever. The temperature is raised, sometimes considerably. I have seen it as high as 104° F. in the first few days. The rise of temperature is, however, of short duration, rarely lasting longer than a week, after which time it falls and remains, as a rule, subnormal.

The Effect of Cold or Chill.

Of the actual cause of acute Bright's disease we have but little definite knowledge. One fact is clear that *cold* or *chill* does not play by any means the important part which has been long attributed to it. The common text-book description—that the patient rode on a cold day outside a coach or on a motor-car, got greatly chilled, and next morning could hardly open his eyes for œdema—may be picturesque, but it is not correct, though there is no doubt an element of truth in the statement that a chill often precedes the onset of acute nephritis. The same is stated of pneumonia, rheumatic fever, peritonitis, and many other affections. If chill predisposes to any of them the actual attack requires the presence of some other determining factor, and we should probably be correct in saying that all cold can do is to reduce the general resistance of the body, so that it falls an easier victim to any infection which is lying in wait to attack it.

If cold and exposure could cause acute nephritis no conditions could have been more favourable to its production than life in the trenches during last winter. It was, I think, generally anticipated that acute nephritis would be frequent. Yet though frost-bite and other direct effects of cold were very common, there was little or no acute nephritis; and in the spring, when the great cold had passed and the weather had become milder, acute nephritis became common. The cases came in such a rush that it was thought they must be the result of an infection of some sort.

Several of the cases were sent to St. Bartholomew's Hospital, where a ward was set apart for their thorough investigation and placed under the competent direction of Dr. Langdon Brown. His report is an able record of thorough and systematic work, and is full of observations of great interest and importance. The figures which he gives of the incidence of the disease up to the end of June appear below. The highest number occurred in midsummer in the month of June when the heat was considerable.

Dropsy.

The signs of acute nephritis are obvious enough when dropsy *occurs*, but dropsy does not appear, except, perhaps, in the most severe cases, until the nephritis has lasted some days. In mild cases it may not appear at all. This is especially the case in the course of scarlet fever or diphtheria, where, in spite of the absence of dropsy, the urine may contain blood, albumin, and casts, so that the diagnosis of acute nephritis is clear so soon as the urine is examined.

The absence of dropsy does not therefore exclude acute nephritis, but it is unlikely that dropsy will continue absent except in the very mild cases, which quickly recover.

Cases of Acute Nephritis occurring in the British Expeditionary Force.

In the 6 months preceding February, 1915	92 in all	a monthly average of 15·3.
In February, 1915	72 new cases.	Yielding a monthly average of 194.
In March, ,, ...	138 ,, ,,	
In April, ,, ...	223 ,, ,,	
In May, ,, ...	211 ,, ,,	
In June, ,, ...	326 ,, ,,	

Note.—The later figures are not yet available, but I understand that the number is still on the rise, and that in the last month for which there is a return it was nearly double that given for June.

ACUTE URÆMIA OF UNCERTAIN PATHOLOGY.

This is the most convenient place to refer to a remarkable group of cases, of which I have been able to find no record in recent literature, and I do not know exactly what name to describe it by.

The cases present themselves under the guise of acute uræmia in persons who have been hitherto in good health and free from any signs of kidney disease. The symptoms of uræmia develop with great suddenness, but are of the ordinary kind and unmistakable. The urine is greatly reduced in amount, contains some blood, much albumin, and many casts. There is no dropsy. After a few days, during which time the danger to life seems very great, the symptoms subside almost as quickly as they developed. In most of the cases I have seen recovery has been rapid and complete.

I saw a typical case of this kind in consultation with Dr. F. C. Evill.

The patient, who was about 40 years of age, had been under treatment for an attack of influenza a month previously. The urine was examined then and found normal. He returned to business a little earlier than, perhaps, he ought to have done, for he found his work a burden. A few days later he was taken ill rather suddenly in his office with headache and vomiting, and was brought home very ill. His headache became intense, and the most exhausting restlessness developed, which prevented sleep. Two days later typical uræmic convulsions set in for which he was freely bled with benefit. He remained in this uræmic condition for a week, with continued extreme restlessness and occasional fits. The treatment was active—venesection, diaphoretics, packs, pilocarpine, and finally inhalations of oxygen, which seemed very beneficial. He then began to improve, and in a few days all grave symptoms had disappeared and convalescence was established.

The urine, which during the attack contained much albumin, many casts, chiefly granular, and some blood, rapidly improved, and by the end of ten days was again normal.

No signs of kidney mischief had been present before the attack and none followed. I saw the patient several times subsequently and he remained perfectly well. Of course, I had examined him most carefully at the time for evidence of granular kidney, but no signs of it were present and none developed.

About the same time I saw also in consultation the following case.

The patient, a fine healthy young lady, had been confined at the normal time of her first child two days previously. The urine was known to have been perfectly healthy during the pregnancy. The confinement was quite normal, the

child was a fine healthy boy, and she had begun to suckle it. Two days after confinement, without any warning, she became strange in manner, and a few hours later did not recognise her husband. She was extremely restless, only semi-conscious, and had a good deal of twitching, though no actual fit. The urine was scanty and loaded with albumin.

The case was evidently one of incompletely developed uræmia and was treated on the usual lines. Her condition caused the gravest anxiety for the time, but by the end of the week the symptoms had all subsided. The albumin quickly disappeared from the urine, and the subsequent course of the case was satisfactory. She got quite well and was able to nurse the child.

A similar case was under my care in hospital.

The patient, a man of about 40, was admitted with acute symptoms of indefinite character, the nature of which was at first obscure. He was suffering with intense headache and frequent vomiting. When I paid my visit to the wards the prominent symptom was the extreme restlessness, for he lay in bed tossing himself about from side to side, never still for a moment, with frequent twitchings of the limbs and face, but no actual fit—clouded in mind but not delirious. The urine was scanty, loaded with albumin, and contained numerous casts. The arteries were not thickened, nor the tension raised. Except for the uræmic condition there was nothing to suggest granular kidney. The treatment was active and of the ordinary kind, but the patient was not bled.

For two days the condition remained the same, the most prominent feature of the case being the extreme restlessness, which was most distressing. After this the symptoms rapidly subsided and by the end of the week had vanished entirely. The urine rapidly cleared up and became normal. On his discharge from the hospital he seemed quite well and showed no signs of the critical illness through which he had passed. There was no evidence of granular kidney.

I have seen one or two other cases of this kind in private. The only fatal case I have met with occurred in private, and no post-mortem examination could be obtained.

I am at a loss to explain the nature of these cases. Uræmia may set in without warning in granular kidney, but the signs of granular kidney are then obvious enough. It is generally fatal, and in the rare cases in which it is not the signs of granular kidney, of course, persist, and before long either another attack of uræmia or some other complication ends the story.

In the cases I am describing granular kidney may be excluded, for there were no signs of it before or after. Acute nephritis also will not explain them, for uræmia is not an early, least of all the first, symptom in acute nephritis, and convalescence is much more tedious and prolonged. The condition is obviously renal in origin, but it is not one that is met with in any of the recognised forms of kidney disease. I have wondered whether it was for cases of this kind that the old-fashioned term, which has now dropped out of our nomenclature—viz., acute congestion of the kidneys—was invented.

CHRONIC BRIGHT'S DISEASE—GRANULAR KIDNEY.

I now pass to the second or chronic form of Bright's disease, which we now generally speak of as granular kidney.

Granular kidney is a disease *sui generis*. It has signs and symptoms by which it can be recognised with precision, and definite pathological lesions of the kidney associated with them. It is true that it is often overlooked, chiefly because the symptoms are so variable and may point to any part of the body rather than to the kidney; but for all that the diagnosis is in most cases easy enough. The thickening of the radial artery felt when examining the pulse may be the first thing to arouse suspicion. Examination of the urine shows the presence of albumin, and suspicion once aroused the correct diagnosis is soon made.

The morbid anatomy of granular kidney falls into two parts: (1) the renal; and (2) the cardio-vascular.

Renal Changes in Granular Kidney.

Of the renal changes there are only one or two points to which I wish to refer.

Granular kidney is *a bilateral affection*. Both kidneys are always involved, and to much the same extent. Consequently no unilateral affection belongs to the category of Bright's disease. For example, I recall a typical contracted kidney on the left side only, which was the result of the pressure of an abdominal aneurysm on the renal vessels. But there were none of the symptoms of granular kidney, the other kidney being sound. Similar cases are not uncommon as the result of impacted calculus.

The morbid process in the kidney is essentially an interstitial fibrosis, but to regard granular kidney as synonymous with *chronic interstitial nephritis*, even when bilateral, leads to confusion, for similar changes are met with as the result of other affections. Complicated as the structure of the kidney appears to be, its ultimate constitution is simple when it is unravelled and its essential units studied. The combinations of pathological changes, therefore, in the kidney are limited, so that similar anatomical changes do not prove identity of cause.

The Contracted White and Contracted Red Kidney.

The only other point upon which I desire to dwell in relation to the morbid anatomy of granular kidney is the distinction so commonly drawn between the white and the red contracted forms. The two forms, of course, exist, and are, perhaps, equally common in the post-mortem room. Still a classification by colour is very indefinite and unsatisfactory, for the results would differ with different observers.

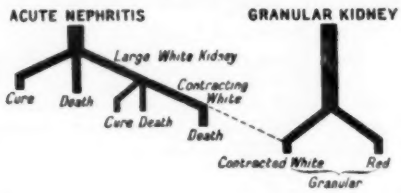
What I desire to protest against is the theory implied that the difference of colour connotes a different origin; that the small white kidney is the later stage of the large white which had its origin in acute nephritis; and that the small red kidney is the result of other, so far unknown, causes.

Frerichs, to whose writings so much of the pathological confusion is due, asserted dogmatically, but without adducing a scrap of clinical evidence to prove his assertion, that granular kidney was in all cases the chronic and later stage of acute nephritis. His theory has been now so far modified as to limit this assertion to the contracted white form, but equally without evidence.

If the theory were true it should be readily capable of clinical proof, for there would be no difficulty: (1) in showing that the small white kidney gave a history of acute nephritis while the small red did not; and (2) in obtaining a series of cases in which the progress of the disease could be followed from the original attack of acute nephritis, through the chronic stages up to the ultimate condition of the contracted white kidney.

The figure (see next page) shows the theory in a diagrammatic form, and the dotted line where the evidence is lacking. The theory depends, not upon pathological possibilities, but upon clinical evidence, by which it must stand or fall, and the clinical facts are absolutely opposed to the theory. Wilks said that in the whole of his experience he had never seen a conclusive case, and my own experience has been the same.

If the acute and chronic forms of Bright's disease are identical it is remarkable that in their morbid anatomy, as well as in their clinical course, they have hardly a point in common.



Granular Kidney as a Cause of Acute Nephritis.

In dealing with the question of the relation of granular kidney to acute nephritis it must be borne in mind that granular kidney, so far from being the end results of acute nephritis, is itself not an uncommon predisposing cause of acute nephritis. Indeed, we may lay down the general proposition that as in children the chief cause of acute nephritis is an infection like scarlet fever or diphtheria, so in adults it is granular kidney. In other words, the adult gets his attack of acute nephritis because his kidneys are already unsound, that is, in most cases, granular.

The distinction drawn between the small white and the small red kidney is not established by clinical evidence, and this false theory by suggesting a connexion which does not exist hampers progress.

The Cardio-vascular Changes.

I should prefer to call them arterial, for the cardiac changes I regard as in the main consecutive or secondary. Here, again, in our classification of arterial changes we must rely mainly upon clinical and not purely anatomical criteria.

Putting aside the acute, for the most part infective, lesions commonly described as acute arteritis, we find that the chronic forms fall into two well-defined groups: (1) those associated with advancing years, which are commonly called atheroma; and (2) those connected with granular kidney, met with at a much earlier period of life. Syphilitic affections are local, though they may be multiple, and do not require to be considered in this connexion.

Atheroma, though widespread, is not universal. It affects the large vessels, notably the aorta and main trunks, and among the smaller vessels those of the brain and heart especially. It may also affect the renal vessels and lead to degenerative changes in the kidney.

In *granular kidney* the arterial changes are universal and involve all the arteries throughout the body, especially the middle-sized and smaller vessels. Though associated with degenerative changes, it is largely muscular hypertrophy, at any rate in the early stages, as the effect of nitrite of amyl shows.

As age advances the two conditions may be associated, but to suggest the use of the term "atherosclerosis" is to confuse together two lesions which should be kept distinct. Atheroma is the recognised term for the one. It is to be regretted that there is no accepted term for the other. Arterio-sclerosis, which is sometimes used, is the mere translation of "thickening of arteries," and is a general term which covers both forms.

The difficulty is still further increased by the fact that while the one form, atheroma, presents more or less definite pathological changes, there is no agreement yet as to the exact nature of the pathological changes in the other; but, as I have said, we must not expect pathology by itself to settle a question which is largely clinical.

Besides these two forms there is a third general arterial change, which perhaps ought rather to be regarded as physiological. I refer to the thickening of the arteries which is often observed in healthy young men of great physical power—e.g., in athletes in training, especially gymnasts and oarsmen. In them the arteries seem to hypertrophy just as the heart does. The condition in both heart and arteries is transient and passes off as the need for it disappears. It occasionally raises questions of clinical importance, so that it should be better known than it appears to be. I have not infrequently been consulted by young athletes in the height of physical fitness who have been alarmed by being told that their arteries were thick and that they might have kidney disease.

Clinically the significance of arterial thickening varies with age. Thus in elderly persons it may be the simple common degeneration due to advancing age. In early middle life its significance is much graver, and the suspicion is at once raised of granular kidney—a suspicion which becomes greater the younger the patient is—for granular kidney occurs, as is well known, in the quite young, even in small children, and in them, too, arterial thickening may be well marked.

Arterial Tension.

From arterial thickening it is natural to turn to arterial tension. The blood pressure is generally high in granular kidney and may be well over 200 mm., but there is often no distinction drawn between the systolic and diastolic pressure. The systolic depends largely upon the force of the heart. It is the diastolic that it is most important to determine, and this is where the difficulty lies in the absence of any reliable apparatus. The educated finger is often a far better guide than any instrument. It is, no doubt, the fact that the diastolic pressure is markedly raised as well as the systolic.

The pressure having been high it may fall, even below the normal. Such a fall is an indication that the patient is not so well. It were better for a patient not to have granular kidney, but having it, it is best that the pressure should be raised. The pressure cannot be materially reduced without the general health suffering, and it is not until the pressure has risen again to the former height that the patient begins to feel in his usual health.

The rise of blood pressure is, as a rule, persistent, but it may vary to some extent, being higher at one time than another. What I desire to draw attention to is the fact which is not generally known, that, in the later stages especially these oscillations are frequent, and may recur so rapidly as almost to deserve the name of waves. While the finger is resting on the pulse these waves may often be clearly observed if watched for, and the character of the pulse may be felt to change even in consecutive half-minutes. I have often tried to obtain tracings to demonstrate these changes, but hitherto without success. I am inclined to regard these variations as vaso-motor in origin rather than cardiac.

Hyperpiesis.

High tension is not necessarily of renal origin. For these cases Clifford Allbutt has suggested the name "hyperpiesis," and it is well to have a term to describe them by, for they constitute a definite clinical group of great interest, though I doubt if

they are as common as they are sometimes thought to be.

The condition produces the same secondary effects upon the heart as are the result of granular kidney, and no doubt in the end may lead to arterial degeneration, so that cardiac failure or cerebral lesions may develop in time. Yet there is no albuminuria, and where a post-mortem examination has been made no kidney lesions have been found. In some persons this raised pressure seems to be their normal state. They are usually of robust, full habit, of great energy and powers of work, both mental and physical, and they live literally at high pressure and without that high pressure they cannot live the life which seems natural to them and which they enjoy. To attempt by active means to reduce that pressure has generally little, if any, effect on the pressure, but it succeeds in making the patient ill and miserable.

Many years ago Mahomed described what he called the pre-albuminuric stage of chronic Bright's disease, cases in which the blood pressure was high, but in which albuminuria or other signs of renal disease were absent. Some of them were probably cases of hyperpiesis. Mahomed, however, assumed that the high pressure was the precursor of renal disease, but the clinical evidence he adduced did not prove his theory.

The Relation of Arterial Thickening, High Tension, and Kidney Lesion to One Another.

Given the three factors in granular kidney—the arterial thickening, the raised blood pressure, and the kidney lesion—the question of the relation between them has given rise to prolonged controversy.

Is the arterial thickening the cause or consequence of the high pressure? Do they stand in any direct relation to the renal lesion? Or are the three factors coördinate results of some general, and so far undetected, morbid state? We know that there are cases of high arterial pressure without arterial change or renal lesion, and cases have been described of granular kidney without arterial change or high pressure.

My own belief is that, so far as granular kidney is concerned, the primary change is renal, that the raised arterial tension is the result of the renal lesion, and the arterial changes are the consequence of that, the heart changes being secondary and consequent on the arterial. The cause of the primary renal disease is still unknown. One thing seems abundantly clear—that these problems can only be solved by clinical observation.

Albuminuria.

The amount of albumin in the urine in granular kidney is as a rule small, but it may be considerable, even as much as a half or more. The more important fact is that it may vary from time to time in the same case. Though small at one time it may be large in another. It may even vanish altogether for a time for days or even weeks.

Albuminuria is a symptom, and no diagnosis should be made upon a single symptom. Thus in young persons the question of physiological albuminuria would arise, and in the absence of all other symptoms and signs would probably be the correct diagnosis. Any other sign, especially thickening of the arteries, would render its significance more serious, though even then in a young athlete the question of the thickening being a physiological hypertrophy would have to be considered, especially as in such cases the albuminuria itself might be the result of the muscular effort.

The subject of physiological albuminuria cannot be dealt with in this communication, but it may be interesting to observe in this connexion that the same variations in the albuminuria which has given rise to the various names given to it—viz., cyclic, postural, dietetic, orthostatic, &c.—may be all observed in the convalescent stages of acute nephritis, so that they do not necessarily exclude a renal origin.

The only other remark I would here interpolate is that where albuminuria persists long after an attack of acute nephritis, so that it is in all probability due to incomplete resolution in the kidney, it does not follow, as seems to be so frequently assumed, that the whole kidney is left in a stage of incomplete resolution, still less the whole of both kidneys. It may be, and it certainly is the fact in many cases, that while the great mass of the kidneys on both sides has been restored to perfect health some small part has not, and this little patch of permanent mischief may be quite sufficient to account for the albumin found.

The Ophthalmoscopic Changes.

These I propose to deal with a little more in detail, because I think their significance is not as fully recognised as it ought to be. Yet some of them are pathognomonic, and frequently make a diagnosis certain which without them might remain in doubt. The changes are: (1) silver-wire arteries; (2) pressure on the veins; (3) hæmorrhages; and (4) albuminuric retinitis.

Changes in Retinal Arteries and Veins.

Silver-wire arteries I consider, when well marked, pathognomonic, for though the retinal arteries may show a broad white central streak in some other conditions, especially in the graver forms of anæmia, it never has that peculiar metallic lustre which makes the name so appropriate. Moreover, it is not seen with the other forms of arterial thickening—for example, with atheroma, perhaps for one good reason that atheroma does not attack, so far as I know, the retinal arteries. It is not, however, constant, for it may be absent in otherwise well-marked cases of granular kidney, and is not necessarily seen even when albuminuric retinitis is well marked. Several arteries may show the silver streak, but it often happens that it is well marked in only one or two of them, but in every case it is equally significant.

Closely associated with silver arteries is the *compression of the veins* where the arteries cross them, and their consequent distension on the distal side. This is an inconstant sign and therefore not of the same importance, for it may be absent when the silver streak is well marked.

Tortuosity of arteries is sometimes seen and may be so extreme as to resemble small aneurysms. But tortuosity of any kind is not common, and extreme tortuosity such as that very rare indeed. Some of the most marked cases of tortuous retinal arteries I have seen have not been in granular kidney cases at all.

Retinal Hæmorrhages.

These vary greatly in size, number, shape, and distribution. They may be flame-shaped or like the form of irregular blotches. The latter have their favourite seat in or above the yellow spot. The former lie nearer the disc, extending radially from it as a centre. Of themselves they are not characteristic, but in granular kidney they do not occur without other more definite retinal changes.

The smaller ones may resolve and completely disappear, and even large ones may leave but little trace behind.

If small they may be numerous, and yet affect the sight but little. Much will depend upon the seat, for on the yellow spot even a small hæmorrhage may, of course, affect vision seriously. Sometimes they lead to peculiar ocular symptoms, as in one case which I recall, in which with quite a few small hæmorrhages the patient in certain positions of the eyes saw all things green.

Albuminuric Retinitis.

This is the most important of all the retinal changes, but the most curiously contradictory statements are made about it by different authorities, the reason being that there are two forms which are not generally distinguished from one another as they ought to be. The two forms, to which I drew attention now many years ago, I endeavoured to distinguish by the names of exsudative and degenerative.

The *exsudative* form is similar to that seen in ordinary optic neuritis, such, for instance, as may be associated with cerebral tumour, with which I have more than once seen the diagnosis confused. This form is not rare in acute nephritis, and may completely resolve as the acute nephritis gets well. In granular kidney it is, of course, except in the rarest instances, persistent, and it is a sign that the end is not far off.

The *degenerative* form consists of white glistening patches, bright as cholesterin crystals or fish-scales. They are found for the most part round the yellow spot, but not infrequently in other parts of the retina. They may be quite tiny and need most careful looking for, otherwise they might be easily missed. In their most striking form (the cartwheel form) they occur as long, spoke-like streaks radiating from the yellow spot, or they run together into irregular areas of considerable size. In all cases alike, even where the spots are so tiny, this degenerative form is pathognomonic, for nothing like it is seen in any other disease than granular kidney. Although what have been also called white patches occur in the exsudative form, whether in connexion with granular kidney or some other disease, these are less defined in shape, dull grey in colour, and woolly in appearance, and in most cases easily distinguished from the sharply defined glistening white spots of the degenerative form.

In both forms alike the changes are bilateral and generally more or less symmetrical—that is to say, they occur in similar parts of the retinæ and to much the same degree in both eyes. To this there are some rare exceptions, in which the changes may be extreme on the one side, with very little on the other, but this is so unusual that it does not affect the general truth of the statement.

The two forms are quite distinct from one another, and the exsudative is not, as is often stated, the later stage of the degenerative. They may be associated together sometimes, but even then are essentially independent of one another, and if the exsudative form should resolve the degenerative form would persist.

Prognostic Significance of Retinal Changes.

It is generally stated that albuminuric retinitis is a late symptom in granular kidney, and that in most cases the patient has at the most not more than two years to live. This is true of the exsudative form; indeed, most cases die in a much shorter time—within a few weeks it may be of its being discovered. But the exact duration even of this form is difficult to determine, for in most cases the eyes have not been examined until the vision has suffered, and then being found fully developed, it must have existed some time before it was discovered.

The degenerative form has a much longer lease of life. I myself know of cases of seven years' duration and more. If the eyes were examined carefully in a routine way in every case in which granular kidney was suspected the white spots would be detected much earlier, and the subsequent duration of life therefore found to be much longer than is usually stated.

The hæmorrhages even when large do not as such affect the prognosis in respect of the duration of life, except so far as they show rottenness of vessels, which may end in cerebral hæmorrhage.

I saw some years ago a very remarkable case. I have already recorded it, but on account of its special interest in relation to this part of my subject, I may be permited to refer to it again.

The patient, about 36 years of age, met with a shooting accident in India and had to have his right eye removed. While recovering he suddenly had some fits, never having had any before. The urine was found loaded with albumin and casts, so that the diagnosis was made of acute uræmia, and he was treated accordingly. Shortly after this the remaining eye was examined and found to present the signs of acute optic neuritis which was thought to be characteristic. The diagnosis of granular kidney was made and a very gloomy prognosis given.

Shortly after his return to England I had the opportunity of seeing him. He seemed quite well. His arteries were not thickened, nor was the tension raised. There was no albumin in the urine. His only symptom was defective vision and a little headache if he tried to use his eyes. The ophthalmoscope showed what I regarded as quite characteristic and well-marked albuminuric retinitis. Mr. E. W. Brewerton saw the case with me and agreed that in spite of the absence of other signs the history of the case, together with the eye changes, made the diagnosis of granular kidney certain.

The patient remained under our observation for some months. Albumin was found in the urine while under my observation. Gradually the eye lesion resolved, and in the end the eye recovered completely, so that there was ultimately nothing to indicate that such acute mischief had ever been present. When I last heard of the patient he was well and in active work. He was careful not to overtask his eyes, but the sight of his one eye was excellent.

The optic neuritis was of the exsudative type, but being associated with many hæmorrhages and with white patches which closely resembled the degenerative form, it seemed fair to conclude that the acute symptoms had occurred in the course of granular kidney of date long antecedent to the accident. This view the subsequent course of the case did not confirm. On considering this case again in the light of those which I described in the early part of this lecture I cannot but think that it may have been one of those instances of acute uræmia of unknown origin, similar to that, for instance, of the primipara mentioned, the predisposing cause in his case being the gun accident as parturition was in her case.

My lecture has now reached its conclusion, and I trust it may have justified my choice of subject. Though 100 years have passed since Bright began his work some of the problems he propounded are still unsolved, while many others have evolved which our successors will have to find solutions for. Much as we already know, still more remains to be learnt.

SOME ASPECTS OF THE CEREBRO-SPINAL FEVER PROBLEM.

WITH A NOTE ON A METHOD OF ISOLATING STREPTOCOCCI FROM WOUNDS, ETC.

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I PROPOSE to confine myself to such aspects of the disease, its treatment and economic control, as came within my experience during the recent epidemic amongst the troops, and I shall refer more particularly to new methods of technique, which proved of great value in saving labour and time. Finally, certain researches are described which may lead to a more rapid method of identifying the meningococcus in future.

The subject divides naturally into the study of cases and the study of contacts. The former will not detain us long, for the reason that I made personal observations on 13 cases only amongst the troops. My experience is too small to admit of dogmatism.

The Study of Cases.

Diagnosis.—Examination of spinal fluid seems the most satisfactory, especially if the method be adopted of enriching some 10 c.c. of the fluid with-drawn from the spinal canal with glucose (up to 1 per cent.), incubating for 24 hours, and then examining the centrifugalised deposit.

Treatment.—Serum treatment is successful in a large proportion of cases, provided a serum is used which possesses antibodies specific to the infecting strain.

The first two cases seen were treated by lumbar puncture alone; both became chronic and eventually died. Mulford's serum was thereafter used on every case and from that time onward only one patient died after prolonged illness. He was infected by an atypical meningococcus whose striking peculiarity was that it digested and liquefied the blood medium on which it grew. The explanation of the obstinate course of this case would seem to be that the anti-serum had no specific immune bodies for this strain. Unfortunately, the inference was not put to the test. The agglutinating power of the stock serum employed might always be tested against the patient's germ. Several serums might be kept at hand and the most suitable chosen in this way. Only two other cases failed to recover. They were extremely severe and death occurred within a few hours.

Vaccine treatment in general had a definite effect, especially on the temperature, but only the smallest doses were tolerated. One million is quite sufficient for the initial dose. In one case 5 million nearly proved fatal. Most certainly vaccines ought to be autogenous. The following method of preparation is very rapid and easy:—10 c.c. of spinal fluid are enriched with glucose to make the whole about 1 per cent., and incubated 24 hours. In most cases, if the fluid is now shaken up and the débris removed by a few revolutions of the centrifuge, the upper portion can be sterilised at 70° C. for 10 minutes, carbolised, and used as a vaccine. It will be found to contain 50 to 100 million meningococci per cubic centimetre. Failing sufficient growth for an immediate vaccine, culture on solid media is prepared

Treatment might be based on the following schedule. First day: Lumbar puncture with injection of under pressure of more than 100 mm. Examine fluid, enrich with glucose. Second day: Examination of incubated fluid and preparation of a vaccine, either direct or by transplanting. Further dose of 15 to 30 c.c. serum. Third day: Serum. Agglutination experiments with organisms isolated and stock serums. Fourth day: Serum and vaccine, 1 million, and thereafter according to indications. There seems no reason against giving the vaccine at an earlier date—as soon, in fact, as prepared.

My experience to some extent supports the view that meningococci may cause a septicæmia or influenza-like condition. From four only of the posterior nares of 23 patients whose symptoms suggested early meningitis did I fail to isolate a meningococcus. None of these had serum treatment. On five lumbar puncture was performed with negative result. Eight were given a meningococcus vaccine, without, however, any definite result. None developed meningitis; all recovered.

The Study of Contacts.

The study of contacts presents a far more intricate problem, because bound up with it is the great difficulty of meningococcus identification.

It is well to be clear as to our object in examining contacts. We desire to isolate from amongst them carriers of meningococci. Just as for preventive purposes we try to isolate and treat carriers of diphtheria and typhoid bacilli, so we must attempt to deal with meningococcus carriers.

B. typhosus is easily recognisable; so in a somewhat less degree is B. diphtheriæ; meningococci, on the other hand, are far less easily recognisable, and for these reasons: first, the organism is fastidious and requires very special media for its culture. It may be present, and yet not grow; secondly, once cultured it may not live long enough for identification; thirdly, the organism itself is variable; fourthly, there are certain very similar organisms found in the nose during all epidemics which hitherto have been described as separate species. Confusion therefore arises in deciding what is a meningococcus. That some or all of these nasal organisms may be different species is possible, even probable, but it must not be taken as proved for all their observable properties have been described as occurring in meningococci isolated from the spinal canal, and this, since animal experimentation gives us no clear-cut diagnosis, must after all be our ultimate criterion. A glance at the literature of the subject will immediately make the contention clear, more especially if alongside quotations a description of a typical meningococcus is outlined.

Microscopically the organism is a Gram-negative diplococcus (frequently seen singly, also in tetrads on culture). Variation in staining, due to autolysis, is its most marked and most constant character. Colonies are finely granular, transparent, colourless, flat, and sharply defined, and can be readily emulsified in water or saline; yet "some strains (of meningococci) cannot be emulsified,"[1] and Sophian[2] described a pigmented meningococcus isolated from the spinal canal. Growth does not take place below 23° C., yet Lieberknecht[3] obtained growth at lower temperature by adding hæmatin to the medium. Glucose is fermented and not saccharose; yet here

again Sophian[2] describes strains which produce irregular fermentation.

Agglutination may be demonstrated with a suitable immune serum even in very high dilutions, the reaction takes place best at 55° C., and serves as an aid to differentiation; yet in regard to this point, though "pseudomeningococci occurring in the nose can only be distinguished from true meningococci by (absence of) agglutination at 55° C." (Friese and Müller); on the other hand, "there are certain meningococci isolated from the spinal meninges which do not agglutinate at 55° C." (Kolle and Wassermann). Again, absence of phagocytosis with normal serum is usual but not constant, for although (1) "there is no phagocytosis of freshly isolated strain of meningococci with normal serum"; yet (2) "some fresh strains are subject to phagocytosis without subculture"; (3) "after subculture phagocytosis may occur."

If now we examine so-called chromogenic organisms isolated from the nose (M. pharyngeus flavus and the like), we find many meningococcus characters present in greater or less degree. There may be only a trace of pigment or none at all, autolysis takes place, growth may not occur at room temperature, glucose be fermented and not saccharose, and so on. There are even more striking resemblances: (1) On culture a red pigment is developed; (2) colonies are similar in appearance (except for pigment); (3) far more of these doubtful organisms are found amongst carriers and contacts than in "normal throats"; and (4) on subculture the resemblance grows. On the other hand, a series of 24 strains recently examined shows that when tested with a suitable immune serum the behaviour of these organisms is different from that of meningococci isolated from the spinal canal. (See Table on p. 1131).

From this it will be seen that there is no absolute criterion by which we can judge of the genuineness of a meningococcus strain, unless it be isolated from the spinal canal. Conversely an organism isolated from the nose may be a genuine meningococcus, although it is unemulsifiable, although it fails to agglutinate with an immune serum, even a homologous serum at 37° C. (Elser and Huntoon), or at 55° C., although phagocytosis takes place with normal serum, and finally, although it produces pigment.

The present state of our knowledge, as far as it bears on the carrier question, may be summed up thus: No Gram-negative organism isolated from the naso-pharynx can be proved to be a meningococcus. No Gram-negative organism which resembles even faintly a meningococcus can be regarded with certainty as incapable of producing meningitis.

During an epidemic of cerebro-spinal fever there are found in the naso-pharynx of contacts organisms showing an indefinite number of grades, varying from apparently typical meningococci, giving the classical tests and agglutinating with an immune serum, to bright yellow M. pharyngeus flavus, which shows phagocytosis with normal serum, emulsifies with difficulty, and grows at room temperature. It is true that any or all of these for all scientific proof to the contrary may be capable of producing meningitis, but to avoid the detention of unmanageable numbers of contacts it is necessary to label some only dangerous to the community.

The practical question then—and it is only to this that we can profitably apply ourselves at the present time—is where to draw the line. It is an economic question, and the line must be entirely arbitrary. We may, however, perhaps draw some comfort in this difficulty from Flexner's[4] finding in monkeys, that once the virulence of a meningococcus is lost it cannot be regained. So that if we content ourselves with guarding against the spread of a virulent strain of meningococcus, we shall, we hope, be doing all that, economically speaking, is required. At the same time, we shall not be on safe ground until the conditions under which meningococci assume virulence are known, if ever occurs. No one can deny that absolute safety can alone be obtained by spreading the net wide enough to include the whole gamut. It seems wise to err on the safe side and include doubtful strains, at any rate during the early part and the height of an epidemic.

The technical difficulties are: (1) of culture; and (2) of identification.

1. *Of Culture.*

The meningococcus evades notice by failing to grow. I can, I think, safely claim that the medium I have used during the recent epidemic completely surmounts this difficulty. *With this medium it is impossible to miss a positive.* It is easily prepared and keeps well when tubed, though, in common with all other media, plates must be fairly fresh. It consists of three parts of defibrinated bullock's blood, one part of trypsin agar (Douglas) with 1 per cent. glucose. The component parts are mixed in sterile fashion at 50° C., poured into sterile plates or tubes, and steamed for three days in succession at a temperature of 60° C. for two to three hours, but raised to 80° C. during the last half hour on the third day. The medium should be dark brown and opaque and should present a smooth glossy surface. It should be at least one-eighth to three-sixteenths of an inch in thickness on plates. On experiment it was found that the two most important constituents were the altered hæmoglobin and the glucose.

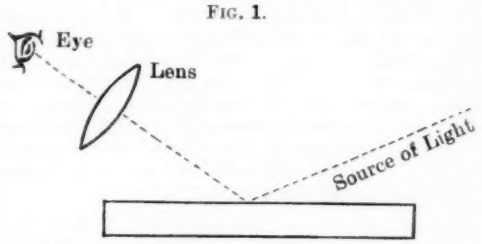
Apart from the natural prejudice of conservatism appertaining to the novelty of using opaque media, there are at first sight certain disadvantages inherent therein. First, the opacity itself prevents the viewing of colonies under low magnification by transmitted light. I am very strongly of the opinion that this objection is invalid, because my experience no further differentiation is to be obtained by transmitted light than is already apparent on my medium by reflected light with the proper use of a good hand lens. On nasgar certain Gram-positive cocci and Gram-negative bacilli resemble meningococci, and in order to be excluded must be stained; whereas on my medium the only colonies after 48 hours' growth which I have come across resembling in shape those of the meningococcus are pseudo-meningococcus pharyngeus flavus colonies.* These being Gram-negative cocci, staining is unnecessary. The former can only be distinguished on any medium by agglutination tests, the latter by pigment formation or growth at 23° C. But pigment formation when it occurs is quite as apparent on my medium as it is on nasgar viewed by transmitted light. In any case of doubt, however, it was found that if the suspected colony be immersed in N/10 sulphuric acid the faintest trace of pigment becomes readily apparent for the unpigmented meningococcus colonies turn to a pale blue and resemble a porcelain plaque, whereas pigmented colonies turn to a muddy green.

* The bacillus of Friedländer was never found in any of the contacts examined. It has been stated to resemble the meningococcus.

The clear-cut edge is quite as easily to be observed on the blood medium as by transmitted light. Not so, however, the degree of granulation. But since the lack of this diagnostic indication does not seem to affect the ease with which the meningococcus-like colonies can be recognised on my medium, I surmise that the granulation is only of value to differentiate micrococcus catarrhalis, and the above specified Gram-positive cocci and Gram-negative bacilli, none of which seem to be a source of difficulty. On the other hand, the extreme flatness of meningococcus colonies is more readily appreciated on the opaque medium by reflected light.

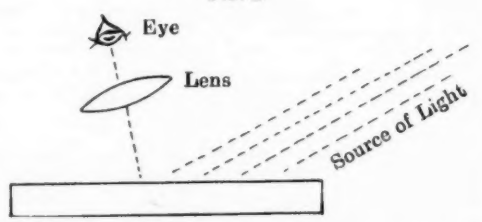
A brief note on the proper method of examining an opaque plate for colonies of meningococci may not be out of place. Let us take as an example a naso-pharyngeal primary culture of 48 hours' growth. The observer standing opposite a good light (preferably daylight) holds the plate face up in his left hand and removes the cover; then through a lens held in his right hand he scans the plate. The eye should be close to the lens. A preliminary glance at the surface of the plate, which is at first maintained in the horizontal plane and held directly below the eye, reveals various colonies, foremost among which is usually a hæmolysing organism (shown by the greenish-yellow discolouration of the medium). A variable number of transparent colonies like chocolate in appearance, from the colour of the underlying medium, may also be present. If these are absent the plate may immediately be discarded as negative. If present, whilst keeping one of them in view, the plate should be turned in the hand on a horizontal axis towards

FIG. 1.



the light. The optical system here in question can be represented as in Fig 1, whilst before this turning movement the second diagram would represent the position shown in Fig. 2.

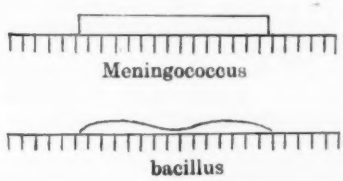
FIG. 2



A meningococcus colony appears, when viewed by this method, to be of a very remarkable flatness, entirely unruffled save occasionally for smooth undulations. The edge is sharply cut, of great regularity, and meets the surface of the medium at a right angle, never at an acute angle. The point is important, and may be readily seized by considering the diagram in Fig. 3, which represents a meningococcus colony and a colony of certain Gram-negative bacilli in transverse section.

In passing, I may meet two quite subsidiary and really only apparent objections which might occur to one experimenting with the medium. First, the medium is friable, and the spreading either of swabs or cultures troublesome. Once the knack is acquired, however, there is great advantage in this peculiarity, for rapidly spreading organisms do not contaminate the whole plate as they do the

FIG. 3.



usual agar media, and during the spread of a swab the mucus is so rapidly thinned out that discrete colonies appear very near the site of inoculation. Hence several swabs can be applied to a single plate, and their resulting growths remain separate and distinct. Secondly, when the plate is held face up for inspection it is liable to become contaminated. This is a matter of no moment, for, except to subculture if desired, an operation always to be performed at the time of examination, the plate is now finished with.

If such a colony as is here described is to be seen on the plate, well defined and without the faintest tinge of yellow colouration, it may in practice be diagnosed as a meningococcus. Over a large number the error will not amount to 5 per cent. When a large number of contacts require to be examined the extra labour involved in eliminating the error would be so great that the delay would be far more serious. The error, be it noted, is on the safe side.

Fresh spinal strains differ from nasal. Meningococci when first isolated from the spinal canal, in contradistinction to nasal strains, usually appear milky, and further growth on my medium intensifies this character. Sooner or later a red pigment is developed in the richer portions of the culture. This has also been noted by Elser and Huntoon. The spinal opalescent culture, however, can artificially be made to produce clear colonies if it be emulsified in normal saline and taken up on a post-nasal swab already charged with mucus. On plate culture the resultant colonies may be quite transparent and indistinguishable from nasal strains. The original appearance is regained on further subculture.

A second objection likely to be raised is that on my medium meningococci grow at 23° C., therefore the test hitherto relied upon must be discarded. I cannot subscribe to the validity of this objection, since it is far more important to use a medium on which the meningococcus always grows and to discard the test rather than to tie ourselves to a medium on which the meningococcus does not always grow and dies out rapidly. Meningococci subcultured on to nasgar will grow at 23° C. for 24 hours. They then die out, and in the course of a further day or two disappear completely from the surface of the medium. Performed in this way, the 23° C. test may still be made use of if desired.

I should perhaps add that a mixture of the clear liquor of freshly laked corpuscles mixed with nasgar provides an equally successful culture-medium, even though the proportion of hæmoglobin

is extremely small, less than 1 per cent., but the advantages in differentiation given by the opaque medium are lost. To those, however, who prefer the use of a transparent medium such a "hæmoglobin nasgar" is to be recommended. The meningococcus will, I believe, always grow when fairly fresh hæmoglobin is present, so that one element of uncertainty will no longer be a source of discomfort to the conscientious worker, and also the 23° C. test (subculture on plain nasgar) can be used, provided always that readings are not taken definitely for 72 hours, by which time the early growth will have disappeared.

2. *Of Identification.*

On the whole, serum reactions seemed to afford the most probable chance of providing an economic line—on the one side of which we can place organisms dangerous to the community, on the other side those similar indeed, but harmless.

Observations on phagocytosis did not lead to any definitely useful result. The following summary will suffice. Autolysis was troublesome, but could be circumvented by emulsifying a young culture in 1·5 per cent. NaCl instead of 0·85 per cent. A certain irregular phagocytosis noted with normal serum was also suppressed by the use of the stronger solution. The serum of a convalescent was found to be very powerful, but after seven weeks the index was nearly normal, immunity being apparently of short duration in this case. I was able to confirm the statement quoted earlier that recently isolated strains of meningococci are able to withstand the attacks of phagocytes, and that this power is lost after some weeks. It is also destroyed by heat (10 minutes at 70° C.). Possibly the virulence of a meningococcus depends upon this "aggressive" property. To test the point I would suggest that in all experiments on monkeys the strain should be tested for phagocytosis with normal serum before injection, to determine whether there is any connexion between virulence and failure of phagocytosis. Should such prove to be so, a very simple test of the virulence of a nasal strain would immediately be to hand.

Agglutination.—During the experiments on phagocytosis it was noticed that meningococci from the spinal canal were markedly agglutinated by a patient's (immune) serum (when used undiluted). The picture was so remarkably distinct that further investigations seemed to be worth while. Unless otherwise stated the time the mixtures were incubated was ten minutes, and the volumes of each ingredient were equal. Films were prepared according to the opsonic method and stained with carbol-thionin after fixation with a saturated solution of $HgCl_2$.

EXPERIMENT I.—*Mixtures contained Washed Corpuscles and Immune Serum from a Convalescent Patient.*

Meningococcus emulsion in 1·5 % NaCl solution.	Resulting agglutination.
Strain W., homologous to serum	+
Strain B.	+
Strain L.	+
Strain N.H.	−

All meningococci were not agglutinated by the serum of a convalescent.

Two samples of Mulford antimeningococcus serum were then tested in like manner. Sample A was obtained from one of their syringe outfits, which came into the laboratory in February and had been preserved in vaccine bulbs on ice since that time. This was substituted for the convalescent's serum, normal horse serum (Burroughs, Wellcome, and Co.) taking the place of the normal human control. Undiluted serum was mixed with washed corpuscles and meningococcus emulsion. Agglutination was apparently complete. Normal horse serum, on the other hand, failed to produce any agglutination. Substituting again a later Mulford serum (Serum B) from bottles, good agglutination with meningococci was also obtained. Dilutions of one-sixth, one-twelfth, one-twenty-fourth, &c., were then tried, leaving the mixtures from one to two hours, but the picture was by no means so definite as in the case of the former experiments (where the final dilution was of course one-third). If the time were reduced from ten minutes to one minute it was found that whilst Serum A still gave a beautiful picture, suggesting complete agglutination, Serum B failed.

Experiment II.—The true agglutinating value of Serum A was determined by an experiment on the conventional lines. I made use of a fairly thick emulsion of a spinal strain (L) of meningococci in 0·85 per cent. NaCl, which one might guess at from 2000 to 3000 million per cubic centimetre, killed by heat at 65° C. Result: 1 in 100 was the highest dilution where agglutination was complete.

Serum A is not a really strong agglutinating serum for meningococci; this makes the result of one minute's incubation rather remarkable. It was assumed that Serum B's power would be less. No further experiments were undertaken with Serum B.

Experiment III.—The dried serum of a convalescent was now tried, one week after withdrawal, when it had lost its phagocytic power. For diagnostic purposes how would this serum contrast with the artificial Serum A? In this experiment, as in others following, in order to simplify the reaction, instead of washed corpuscles, blood was shed into a small quantity of 10 per cent. sodium citrate. It will be readily understood that in an agglutination experiment of this kind washed corpuscles or citrated blood are to be regarded merely as a mechanical aid, and not as an integral part of the experiment.

EXPERIMENT III.—*Citrated Blood was Used.*

No.	Emulsion.	Serum.	Resulting agglutination.
1	Meningococcus B.	W. (dried).	+
1A	,,	Fresh normal.	−
2	Pigmented nasa strain.	W. (dried).	±
2A	,,	Fresh normal.	±
3	Meningococcus B.	Mulford A.	+
3A	,,	Normal horse.	−
4	Pigmented nasal strain.	Mulford A.	±
4A	,,	Normal horse.	+

No. 2 shows partial agglutination and also No. 2A (the control). This would constitute a negative result; but, on the other hand, No. 4 and 4A give a far clearer picture in regard to the nasal strain, for the latter was strongly agglutinated by normal horse serum and less by Mulford.

Now to what extent can this method be relied upon as a practical test, and is it of value in regard to the differentiation of pigmented and other strains which resemble meningococci? Twenty-four laboratory strains were submitted to the test, and the following technique was finally evolved:—

(*a*) Suck into a pipette a little 10 per cent. citrate of soda, prick the finger, and draw blood into the citrate. Mix. (Proportion about one of citrate to six or seven of blood.)

(*b*) Emulsify organism to be tested in 1·5 saline in a watch-glass by rushing in and out of a short pipette with square-cut end. (Fig. 4.) (N.B. The emulsion should be

FIG. 4.

thick. The age of the culture is immaterial, but a young culture is the best for staining purposes.)

(*c*) Fill two Wassermann tubes, one with immune serum and one with corresponding normal serum.

(*d*) Mark an "opsonic" pipette with a unit volume and proceed as for an opsonic index: (1) One volume of citrated blood; (2) one volume of immune serum; and (3) one volume of emulsion. Mix, seal, and incubate for a few minutes; ten is a convenient time (whilst control serum is put up in the same way). Take out, mix well, and spread as for an ordinary opsonic film.

Note that the citrated blood acts (1) as a throttle to the pipette and facilitates manipulation; and (2) as a medium for giving a good spread. Use any rapid stain. In the case of the immune serum meningococci will have formed large clumps, all congregated at the edge of the film if properly spread, whilst the normal serum film shows only single cocci. The table below shows the result, and it will be seen that agglutination with Mulford A, and not with horse serum, constitutes a positive result, agglutination with both or neither a negative result. The microscopical picture presented by the stained film showed no ambiguity.

All spinal meningococci were positive; all definitely pigmented organisms were negative. All Gram-negative cocci, which could be distinguished from the meningococcus by macroscopic appearance on my opaque medium, were negative. All saccharose fermenters were negative. Of the nasal strains, which were unpigmented, emulsifiable, fermented glucose and not saccharose, and showed typical colonies, all except two were positive. The two which gave a negative agglutination result were not agglutinated by normal serum. Either we may suppose them to be parameningococci, or more probably Serum A failed to embrace these strains from lack of polyvalency.

If clear and unambiguous results can be obtained with a serum agglutinating so feebly as 1 in 100, one would expect to find in this an extremely facile method with a stronger agglutinating serum. Further experiments in this direction will be continued when a more powerful serum is to hand,† and an attempt made still further to simplify the technique. Absorption tests were attempted, but probably owing to the feebly agglutinating power of Serum A entirely failed. Agglutinins were absorbed by a very definitely pigmented organism, which reduced saccharose, and also by a M. catarrhalis.

A caveat must be entered against too complete a reliance being placed on any observations such as are described here and which have been carried out on laboratory cultures. Meningococci alter so rapidly that one cannot but feel a certain hesitancy in making affirmations about any but quite fresh strains. The findings described will therefore be repeated on unimpeachable material at the earliest opportunity. Subject to such confirmation one may, however, offer the conclusion that agglutination provides the surest diagnostic of meningococcus cultures, and that a rapidly executed test, where time replaces dilution as the criterion, is the most practical method of demonstration.

† The serum of the Rockefeller Institute, a large sample of which was kindly sent me by Professor Simon Flexner, has since been found to be much stronger (1 in 400 to 1 in 800 for several meningococcus strains). This can be used in dilution of 1 in 8 instead of full strength. Unfortunately it is not altogether satisfactory, as red corpuscles are strongly agglutinated by it. The difficulty can be surmounted by incubating serum and emulsion and adding corpuscles just before spreading the film, or agglutination may be obvious in the pipette without spreading a film. The actual dilution will be 1 in 16 instead of 1 in 3, as in the experiments described.

Table of Gram-negative Cocci.

No.	Strain.	Microscopic and general.	Fermentation.		Agglutination.			Remarks, indicating appearance on opaque medium and probable diagnosis.
			Glucose.	Saccharose.	Mulford Serum A.	Normal horse serum.	Result.	
1	W.	T.	+	–	+	–	+	Meningococcus from spinal canal (Military Hospital, Devonport).
2	B.	T.	+	–	+	–	+	Meningococcus from spinal canal (from Major Gordon).
3	L.	T.	+	–	+	–	+	Meningococcus from spinal canal (from Major Gordon).
4	N.	T.	+	–	+	–	+	Meningococcus from spinal canal (from Fleet-Surgeon Whiteside).
5	B.P. 59, nasal.	T.	+	–	–	–	–	T.
6	Nasal II.	T.	+	+	+	+	–	T. or yellowish.
7	Nasal I. 4	T.	+	–	+	–	+	T.
8	Nasal I. 7	At.	+	–	+	+	–	Small and yellow.
9	Nasal I. 17	T.	+	–	–	–	–	T.
10	Nasal I. 4 (A)	At.	+	+	+	+	–	Yellow.
11	Nasal II. 11	At.	+	+	+	+	–	Granular, sticky.
12	Nasal II. 2	At.	+	+	+	+	–	Bright yellow, sticky.
13	Nasal II. 3	At.	+	–	–	–	–	Heaped colony.
14	Nasal II. 6 (A)	T.	–	+	+	+	–	Yellow.
15	Nasal II. 6 (B)	At.	–	–	+	+	–	Definitely yellow, heaped.
16	Nasal II. 10 (A)	At.	+	+	–	–	–	Yellow.
17	Nasal II. 10 (B)	At	–	+	–	–	–	Heaped.
18	Series Z, No. 1	T.	+	–	+	–	+	T.
19	Series Z, No. 3	T.	+	–	+	–	+	T.
20	Series Z, No. 9	T.	+	–	+	–	+	T.
21	Series Z, No. 10	At.	+	–	–	–	–	Faintly yellow, sticky.
22	Series Z, No. 16	At.	+	+	+	+	–	Opaque, much raised.
23	Series Z, No. 19	At.	+	–	+	+	–	Yellow heaped colony.
24	Series Z, No. 20	T.	+	–	+	–	+	T.

In third column, T. = typical; At. = atypical (emulsification or microscopic appearance). In last column T. indicates that the organism thus designated gives the typical appearance on "chocolate" medium and is therefore to be regarded as a true meningococcus.

Isolation of contacts.—It was found that if contacts are segregated the proportion of carriers may rise: The percentage of positives found among 21 men examined on Feb. 22nd was 57·15, among 16 men examined on March 2nd it was 82·61, whilst on March 9th 20 men yielded 100 per cent. It is clearly then bad practice to isolate together all contacts of a case. Proof of the carrier condition should be sought at the earliest possible moment, and only those found positive segregated.

Treatment of carriers.—Broadly speaking, the greater the effort the smaller the success. I tried a variety of methods and the net result seemed to be that the stronger the antiseptic employed the more obstinately did the meningococcus refuse to

be eliminated. I was led to the conclusion that nature assisted only by the weakest of washes—for example, permanganate of potash 1 in 10,000 or entirely unassisted, was more successful in removing the invader than the hand of man with his douches, swabs, or sprays containing antiseptic mixtures, however cunningly devised—a humiliating but, I believe, an incontrovertible truth.

During the investigations observations were invited by the War Office on the connexion, if any, between carriers and nasal catarrh. Superficially certain statistics which I compiled seemed to favour such a connexion. Of 64 contacts from the segregation camp who had catarrh, or were subject to catarrh, 51 were positive carriers. Of 104 contacts who had no catarrh, 76 were positive carriers; or of those who suffered from catarrh, four-fifths were positive. Of those who did not suffer from catarrh, about two-thirds were positive. An interesting fact, however, has been found by Dr. Cresswell Shearer, who permits me to note it here, a fact which obviously has an intimate bearing on the point at issue. If a solution of nasal mucus collected from post-nasal swabs by steeping them in distilled water and sterilising at 60° C., or even by boiling, is mixed with a meningococcus culture at the time of inoculation growth is greatly favoured, and that though the nasal mucus is highly diluted. The photographs taken by Dr. Shearer demonstrate in striking fashion the difference in 24 hours' growth of meningococci on two plates. A small loopful of culture was thoroughly emulsified in 1 c.c. of sterile Ringer's solution (autolysis is much less than in saline). Successive dilutions were then made by mixing 10 c.mm. of this emulsion with 25 c.mm. of Ringer's solution, removing 10 c.mm. and mixing with a second 25 c.mm., and so on ten times; a drop of about 8 c.mm. from each dilution was then deposited in series on one plate. The same process was repeated, substituting the nasal mucus solution for the Ringer's as diluent, and the same quantities

FIG 5.

Dilutions in Ringer's solution, growth progressively less.

arranged in similar fashion on the other plate. In the result it is seen that the Ringer dilutions give successively less growth (Fig. 5), whereas diminishing numbers of organisms, when mixed with nasal mucus, give equal growth. (Fig. 6.) This stimulating influence might have the effect of improving the chances of finding the meningococcus, when present, first, by increasing the numbers of the organism on the pharyngeal wall, and secondly, by assisting their growth when the

FIG. 6.

Dilutions in solutions of nasal mucus, growth approximately equal in all dilutions. The extremely scanty numbers of micro-organisms in the higher dilutions was confirmed by microscopic examination.

swab, well charged with mucus, is rubbed on the culture medium. In this connexion it must be borne in mind that a certain minimum number of organisms must be inoculated before growth will take place. One may assume this minimum to be reduced when nasal mucus is present. On the other hand, it must be conceded that a catarrhal condition in the nasopharynx may reduce the amount of infective material required before the meningococcus will, as it were, take root. Dr. Shearer hopes to be able to determine what constituent of the nasal mucus is responsible for the phenomenon here described—clearly a matter which may prove of the highest importance in regard to the incidence and infectivity of cerebro-spinal fever.

To sum up the practical results:—

Diagnosis of cases: By examination of spinal fluid after enrichment by 1 per cent. glucose and 24 hours' incubation.

Treatment of cases: Serum (tested and found to agglutinate the organism isolated), followed by small doses of an autogenous vaccine.

Diagnosis of carriers: A medium to be used containing hæmoglobin or a near derivative. Ultimate recognition of the organism to be gained by use of a simple agglutination test.

Treatment of carriers: Mildest methods only.

In conclusion, I gratefully acknowledge the assistance of Dr. John Donald and Dr. Shearer, engaged under the Medical Research Committee.

NOTE ON A METHOD OF ISOLATING STREPTOCOCCI FROM WOUNDS, AND OTHER DELICATE ORGANISMS IN FACE OF GROSS CONTAMINATION.

When investigating the bacteriology of wounds one finds the majority grossly contaminated with B. proteus and other putrefying organisms, and the separation of delicate slow-growing streptococci and even staphylococci, in face of these germs, is

most arduous and often impossible. If pus from such a wound is spread on a blood-agar plate, even in the most dilute proportions, the growth of saprophytes covers the whole surface of the medium within a very few hours; in fact, long before the organisms sought for have made sufficient growth to be recognisable. Under the circumstances one is in practice confined to using autogenous vaccine in uncontaminated wounds, and these are not as a rule the most urgent. This difficulty I now find can be surmounted by using the medium described in the preceding paper for isolating the meningococcus. Putrefying organisms have not been found to spread readily over the surface of this medium as in the case of agar or blood agar, and in consequence streptococci, whose growth is greatly favoured, develop free of admixture with them.

It is usually necessary to dilute the pus, and it is advisable to use two plates. Almost any method of dilution will give good results. The following has been found quite successful: 1. Four small drops of sterile saline solution are placed one on each half of two plates of the medium. 2. A swab from the pus is rubbed into one drop and spread with an inoculator, either a platinum wire or a fine glass pipette. The inoculator is then used to spread the drop on the other half of the same plate without further sterilising. Then it is conveyed to the second plate, where each in its turn the drops are similarly treated. In this way dilutions of pus are carried out to a very fine point, and after 24 hours single colonies can be obtained uncontaminated with putrefying organisms.

One might add that where time is of importance a vaccine of such streptococci can be prepared within a further 24 hours by implanting a single colony in a tube of the broth described by Sir A. E. Wright[6] in his work on miners' phthisis in South Africa. Trypsin broth (Douglas) may be substituted for the peptone, lemco, and salt. B. influenzæ is also readily isolated on this medium and produces fine transparent colonies. Subcultures of this organism may, however, require the addition of fresh blood to the surface. Lastly, gonococci grow well, if the usual precaution is adopted of planting out on to warm medium; subcultures may be transferred on to cold tubes and will survive as long as seven days at incubator temperature.

Bibliography.—1. All quotations are either from Kolle and Wassermann's article in their System of Bacteriology, or from Elser and Huntoon, Journal of Medical Research, vol. xx., 1909, or from Simon Flexner, Journal of Experimental Medicine, vol. ix. 2. Epidemic Cerebro-spinal Meningitis (Sophian). 3. Kolle and Wassermann's Bacteriologie. 4. Journal of Experimental Medicine, vol. ix. 5. Journal of Experimental Medicine, vol. ix., p. 455, &c. 6. Prophylactic Inoculation against Pneumococcus Infections, THE LANCET, vol. i., 1914, p. 1.

UNIVERSITY OF LONDON.—Mr. J. Sherren and Dr. Cuthbert Lockyer have been appointed external examiners in place of Mr. Warren Low (surgery) and Dr. G. F. Blacker (obstetric medicine) respectively.—University medals for the M.D. examination have been awarded as follows: in medicine to Catherine V. Turner (London School of Medicine for Women) and in State medicine to William Alfred Brend (King's College).

IN MEMORY OF NURSE CAVELL.—To honour the memory of Nurse Cavell, Mr. John Howard, the octogenarian philanthropist of Brighton, is devoting the sum of £30,000 to build and endow 24 cottage homes for incapacitated nurses. They are to be erected by the side of the John Howard Convalescent Home for Ladies in reduced circumstances at Black Rock, Brighton. This latter home was built and endowed at a cost of £40,000, but almost as soon as it was opened it was converted into a hospital for wounded officers and early in the autumn was visited by the King and Queen.

INTERMITTENT FEVER OF OBSCURE ORIGIN, OCCURRING AMONG BRITISH SOLDIERS IN FRANCE.

THE SO-CALLED "TRENCH FEVER."

BY G. H. HUNT, M.D. OXON., M.R.C.P. LOND.,
CAPTAIN, R.A.M.C. (T.);
AND
A. C. RANKIN, M.D., D.P.H. MCGILL,
MAJOR, C.A.M.C.

DURING the present war there has been a large number of cases showing a uniform group of symptoms associated with intermittent pyrexia. They bear some resemblance to certain other diseases, but the nature of the symptoms and the temperature chart present a clinical picture distinct from any other condition, and laboratory investigations, although they leave the etiology of the disease obscure, lend support to the view that the condition is not identical with any hitherto described. The description here presented is based on observations of 30 patients; but other cases have been noticed in which the symptoms were identical, but in which the fever ran a different course. Further investigations are being carried on to determine whether any relation exists between these different groups.

Etiology.

Various bacteriological examinations have been made with the object of finding a specific organism causing the disease, but hitherto none has been discovered. It is possible that the conditions of campaigning may be predisposing factors. Thus in nearly all cases the patients had been exposed to cold and damp from sleeping on wet ground or from rain. Inquiry was made for any history of insect bites, but although cases where patients complained of having been stung were common during the summer months there is no reason to suppose that a sting played any part in causing the disease, which was just as prevalent in the spring when no flies or mosquitoes were about. The importance of all these conditions is discounted by the fact that nearly every man from the trenches, whatever his illness, has been exposed to damp and insect bites, and it does not seem likely that any of these factors have much influence in causing the disease.

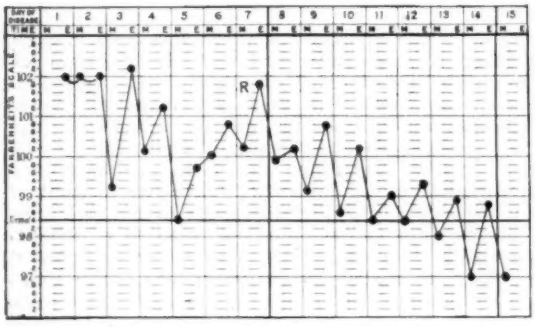
Onset and Symptoms.

In 23 cases the onset was sudden, in 7 more gradual. In the former case the disease began with headache, dizziness, and shivering; in the latter with headache and general malaise. The chief symptoms were headache and pain in the back and legs. Headache occurred in every case. It was rarely very severe, and in two cases only was it intense; it was usually frontal. Pain in the lumbar region was present in 27 cases, pain in the legs in 26; in no case was it very severe. Pain and stiffness in the neck were very rare. Abdominal pain only occurred in 4 cases, and was always described as radiating round from the back, and was probably of muscular origin. Dizziness was complained of in the majority of cases, and was an early symptom, but sometimes it persisted for several days. Two patients fainted at the beginning of the illness. Vomiting was rare (4 cases only), and was never very persistent; in every case it was associated with, and probably due to, obstinate constipation. Constipation was present in 7 cases; diarrhœa only

occurred once, and then only lasted one day. Dryness of the throat was complained of by 2 patients, but in neither case was there any redness of the fauces.

The most striking feature in the condition of the patients was the absence of any objective signs. There was very little constitutional disturbance, and only 3 patients looked really ill. The question of temperature will be dealt with later. The pulse-rate was not raised out of proportion to the

CHART 1.

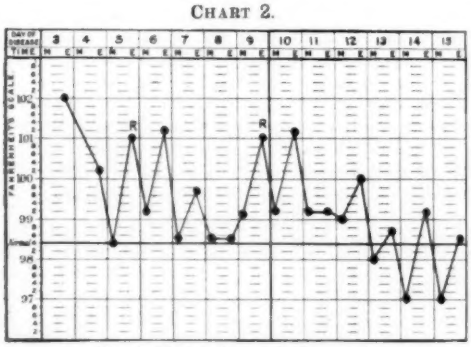


Showing one relapse (R).

fever. The tongue was sometimes clean, but more often was slightly furred; in 3 cases it was thickly coated. There was generally some tenderness over the back and legs, but it was always slight; in 4 cases there was a little tenderness of the abdominal muscles. The heart and lungs showed no abnormal signs, and bronchitis was always absent. The spleen and liver were not enlarged. The urine was free from albumin. In 1 case herpes labialis was present.

Temperature.—The temperature chart furnishes the most characteristic feature of the disease. The

CHART 2.



Showing first and second relapses (R).

temperature was at first raised, then fell to normal, and this fall was followed by one or more relapses. With each relapse there was a recurrence or an aggravation of the symptoms.

The analysis of the cases is divided into two groups. 1. A group in which the patients came under observation before the sixth day; of these 11 had one relapse only, 12 had two relapses, and 2 had three relapses. These cases can thus be divided into three secondary groups. 2. A group in which the patients were not seen until after the sixth day.

Group 1 (23 cases).—The first period of pyrexia lasted about four days; thus the fall to normal occurred on the evening of the fourth day in 6 cases, and on the morning of the fifth day in 14; in 1 case it appeared as early as the morning of the fourth day, and in 2 it was delayed until the morning of the sixth day. The relapses varied in duration and date of onset. In 22 cases the first relapse started on the fifth, sixth, or seventh day; in 1 it started on the evening of the fourth

CHART 3.

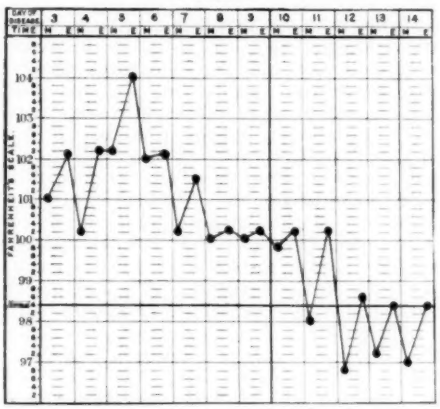
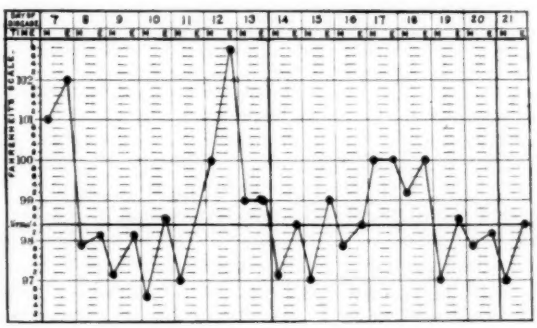


Chart of a patient who showed the same symptoms as those described, but in whom the temperature ran a different course. The relation of this case to those under consideration is uncertain.

day. The first relapse lasted from two to five days. The second relapse in 8 cases out of 12 (including those two in which a third relapse occurred) started on the seventh, eighth, or ninth day, but in 4 cases it was delayed longer, in 1 case until the fifteenth day. The duration of the second relapse is from two to four days.

Group 2 (7 cases).—These patients were admitted after the sixth day of the illness, so that it was

CHART 4.



Showing later stage of disease.

impossible to tell with certainty whether they were suffering from a first or later relapse. All had a raised temperature (or a history of fever), which subsequently subsided and then recurred. In 4 cases there was one relapse only, in 3 a second. The duration of the relapses varied from two to five days.

Results of Investigations.

The investigations undertaken with the object of attempting to establish something definite in regard to the etiology of this fever have been disappointing. On the other hand, they have been of some

value in excluding certain factors which were thought at one time to have some possible relation to it.

In 25 of these cases attempts were made to obtain an organism from the blood by means of cultures. The blood was examined during the second rise of fever, at a time when there could be no doubt as to the diagnosis, and when the symptoms had been definitely established. Eighteen of these cultures were incubated aerobically; the remaining seven anaerobically. Two of the aerobic cultures were contaminated; all the others, both aerobic and anaerobic, proved negative. The blood was run into broth, veal broth, bile citrate, and into columns of melted glucose agar. The quantity of blood added depended upon the composition and bulk of the medium used. The cultures were allowed to remain in the incubator at 37° C. for periods varying from a week to a month, the average time being over two weeks, and were then, with the exception of the columns of agar, planted on glucose blood-agar. Blood smears stained in various ways were examined for the possible presence of some organism, protozoan or bacterial, which might not have appeared in culture. These examinations were negative.

Table showing the Differential White Cell Count in Eleven Cases (Based on Counts of 500 Cells).

Polymorphonuclears.	Small lymphocytes.	Large lymphocytes.	Mononuclears.	Eosinophiles.	Basophiles.
Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.
58·0	19·0	17·0	1·0	5·0	1·0
56·0	20·5	22·0	1·0	0·5	—
60·0	25·0	9·0	4·0	1·0	—
38·0	23·0	36·0	1·8	0·2	—
66·0	20·0	7·7	3·0	3·0	0·3
56·7	25·5	12·1	3·3	0·2	0·2
53·6	28·0	13·6	4·0	0·4	0·4
68·0	23·0	8·7	4·0	—	0·3
70·0	13·7	7·0	9·0	0·6	—
58·4	24·7	10·0	6·2	0·4	—
53·1	32·0	12·0	2·2	0·7	—

The only thing here worthy of note is a very slight relative increase in lymphocytes. The average leucocyte count in 24 cases was 10,500, but the individual variations were so great that the full list of counts may here be given:—4700, 5200, 5500, 5500, 6400, 6800, 7800, 8000, 8250, 8500, 9800, 10,000, 10,000, 10,000, 10,000, 11,000, 11,000, 11,250, 12,000, 12,500, 13,000, 15,000, 15,800, 22,000, 22,000. In addition, in some cases several counts were made on the same patient at different stages of the disease, but the number of leucocytes was not found to vary with the temperature to any great extent.

Thirteen cultures from the naso-pharynx, taken on curved sterile swabs and smeared on several plates of glucose blood agar, first with the swab direct and then from plate to plate with a sterile glass rod, failed to reveal the presence of an organism which might have been considered of etiological importance. The bacillus of influenza was not present in any of these cultures.

The examination of 14 specimens of fæces from these cases did not yield anything suggestive. Several loopfuls of the emulsified sample were smeared in the usual manner on the surface of a plate of bile salt neutral red agar, thence to a second plate of the same medium, and subsequently to two plates of lactose litmus agar. Non-lactose fermenters were sought for and investigated. The stools were also examined for the presence of protozoan and metazoan parasites, but without the demonstration of anything of importance.

The urine of 11 of these cases examined bacteriologically gave negative results.

With the results of these observations before us it is evident that there is nothing in the circulating blood of cases of this fever which can be isolated in culture by the methods we have employed, nor observed in stained blood films. The results of the examinations of cultures from the naso-pharynx exclude the possibility of the bacillus of influenza having any etiological association with this fever. The examination of the stools and urines has shown that these cases of fever cannot be attributed to any modified manifestations of infection with any of the causative organisms of the enteric group.

Different Diagnosis.

When this disease first appeared it was thought that the patients were suffering from influenza, and the two diseases have certain symptoms in common, such as the headache and pains in the back, and may resemble each other in the sudden onset. The chief point of difference is found in the course of the temperature, which has already been emphasised, but this disease has the following additional features, which distinguish it from influenza:—1. Catarrh is always absent. 2. The patients are rarely very ill, even when the temperature is high. (One patient with a temperature of 104·4° F. was found sitting at the table reading, and was rather indignant at being sent back to bed.) 3. The headache is seldom severe. 4. The tongue is usually only slightly furred. 5. There are no complications, cardiac, respiratory, nervous, or renal, and even after pyrexia lasting as long as three weeks the general health is rapidly restored. 6. The leucocyte count is often high. 7. Pfeiffer's bacillus has never been found in the blood or throat.

The temperature chart led to the suggestion that the disease might be dengue. This is excluded by the absence of any rash, by the absence of any splenic enlargement, by the fact that the pains in the limbs are never very severe, and by the high leucocyte count present in many cases. The temperature, the course of the disease, and the result of blood cultures show that it does not belong to the enteric group.

After the patient has been under observation for a few days the diagnosis is readily made. It is more difficult when the patient is first admitted to hospital; it then rests on the following features: 1. A history of headache and pain in the legs and back, without catarrh or gastro-intestinal symptoms. 2. Slight constitutional disturbance even with high fever. 3. A fairly clean tongue. 4. Absence of rash, splenic enlargement, and bronchitis.

In addition to the cases recorded above several have been observed in which the symptoms were identical, and in which the temperature fell to normal on the fourth evening or fifth morning of the disease, and remained so. The similarity of the symptoms and the date at which the temperature fell make it extremely probable that these cases were examples of the same disease with the difference that there was no relapse.

Treatment.

In order to observe more accurately the course of the fever, antipyretic drugs were withheld in the majority of cases. In others, and in additional

cases not recorded, quinine in 5–10-grain doses and sodium salicylate in 30-grain doses were given three times a day. Further observation is necessary before the effect of these drugs can be definitely stated, but neither appeared to influence the temperature to any appreciable extent. For the relief of the pain salicylates and massage are undoubtedly useful. The diet was not necessarily restricted, and even during the fever, unless the temperature was very high, meat was given without ill effect.

Until more is known of the etiology little can be said about prophylaxis. The question of its contagiousness is an important one; it is certain that it is not contagious in any high degree, for, although no precautions for isolation were taken, no patients in the same ward developed the disease. One orderly in the ward, however, had a typical attack with one relapse.

BACTERIAL ANTAGONISM, WITH PARTICULAR REFERENCE TO MENINGOCOCCUS.

BY LEONARD COLEBROOK, M.B., B.S. LOND.,
ASSISTANT, INOCULATION DEPARTMENT, ST. MARY'S HOSPITAL.
(*From the Inoculation Department, St. Mary's Hospital.*)

IN the course of an investigation of meningococcus carriers, undertaken on behalf of the Medical Research Committee, I noticed on several occasions that when the meningococcus began to disappear from the naso-pharynx it was at once replaced by great numbers of pneumococci or streptococci. Moreover, on at least two occasions the disappearance of the meningococcus seemed to be determined by the onset of an acute "cold in the head." The interesting question arose—Had these pneumococci and streptococci simply entered on a field vacated by the meningococcus, or had they also played an active rôle in supplanting that invader?

With a view of showing if there was any antagonism between these organisms on artificial media they were planted, at the suggestion of Captain S. R. Douglas, I.M.S. (ret.), in the following manner. A drop of pneumococcus culture in broth was allowed to trickle across the middle of a serum-agar plate, and as soon as the track of this stream had dried in the incubator a drop of meningococcus culture was run across the plate at right angles to the pneumococcus stream. After incubation of the plate overnight it was found that where the two streams crossed the meningococcus culture had been completely inhibited by the growth of pneumococcus, and this notwithstanding that the meningococcus grew more rapidly. (Fig. 1.)

From further experiments of this kind it appeared that a similar antagonism to meningococcus is shown by many different varieties of streptococcus obtained from the normal mouth and naso-pharynx; and also by several strains of the streptococcus fæcalis type cultivated from war wounds. Moreover, it was pointed out to me by Major M. H. Gordon, R.A.M.C. (T.), that saliva (contaminated, as it always is, by very many streptococci) exercises a similar check upon the growth of meningococcus on artificial media. On the other hand, it may be noted in passing that meningococcus is not alone in its susceptibility to this inhibitory influence. With the exception of gonococcus (two strains) and micrococcus melitensis (one strain) all the Gram-negative cocci I have so far tried have been inhibited by the test culture of pneumococcus employed. They comprise some three or four strains of M. catarrhalis from the nose and mouth, and several strains of the ill-classified cocci which somewhat closely resemble meningococcus, yet differ from that organism by their sugar reactions, or the colour of colonies, or their ability to grow readily at 23° C. I have failed to find any evidence of a reciprocal influence exerted by the meningococcus upon the pneumococci or streptococci antagonistic to it.

FIG. 1.

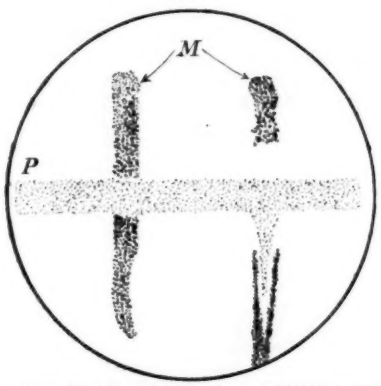


Plate culture showing checking of meningococcus (vertical streaks) by pneumococcus (horizontal). The meningococcus stream on the left was planted from above downwards a few minutes after the pneumococcus—that on the right several hours later, to show checking at a distance. It will be noticed that pneumococci have been carried down in this stream. *M* = meningococcus. *P* = pneumococcus.

This last observation raises a point of some practical importance—viz., that as the antagonism is one-sided, it may evidently operate to conceal the presence of meningococci in cultures made from the post-nasal swabs of meningitis contacts—particularly if a relatively small number of meningococci happen to be mixed with a larger "catch" of inhibitory pneumococci or streptococci, picked up by the swab during its withdrawal through the mouth, or from the naso-pharynx. If, however, the meningococcus predominates on the swab its growth will not be checked—a point which will be brought out a little later.

The following experiments were directed chiefly to determining the nature of this antagonism. Although they have been performed usually with one particular strain of pneumococcus, it seems likely that the inferences drawn from them will be found applicable to the other meningococcus-inhibiting organisms. On the plate culture represented in Fig. 1 it will be seen that by allowing the growth of pneumococcus to get well started before the meningococcus stream was planted the growth of the latter was totally checked, not only where the two streams met, but also to a distance of nearly a centimetre on either side of that point. This checking at a distance suggests at once that some change has been produced in the medium by the growth of pneumococcus. To establish this point it was necessary to eliminate the presence of the inhibitory microbes on the surface of the medium. A slope culture of pneumococcus was washed off with sterile broth and then heated at 54° C. for an hour to kill any remaining pneumococci. Meningococci planted afterwards on this medium were unable to grow. On another occasion a serum-agar slope was heavily planted with

pneumococci *but kept at room temperature*. After 20 hours the cocci were washed off and the tube heated at 54° C. Subsequent planting with meningococcus gave the usual rapid and copious growth, showing that the inhibitory change in the medium is not produced by the mere presence of the pneumococcus on its surface, but only by the process of its active growth.

By another simple crosswise planting experiment—shown in Fig. 2—a further clue to the exact nature of the antagonism was obtained. The pneumococcus stream in this case was crossed by a thin and a

FIG. 2.

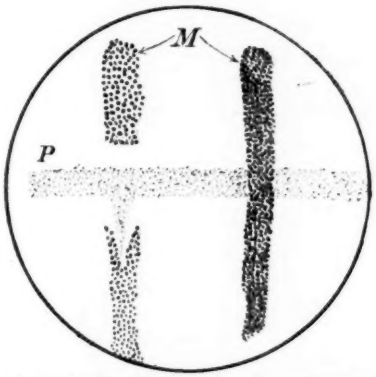


Plate culture showing the inhibition of a small number of meningococci by a pneumococcus growth which quite failed to inhibit a much larger number. The meningococcus streams were planted about 15 minutes after the pneumococcus. *M* = meningococcus. *P* = pneumococcus.

thick sowing, respectively, of meningococci, with the rather unexpected result that the many microbes of the thick sowing were able to produce a vigorous growth across the area forbidden to the few. Clearly, then, the pneumococci had not deprived the medium of something which was essential for the growth of meningococcus, nor in any other way had they rendered the medium, as such, unsuitable for that organism.

The suggestion remains that the pneumococcus by its growth diffuses into the surrounding medium some substance which is directly bactericidal to meningococcus. Such a bactericidal process might well be adequate to check (by death) only a certain limited number of meningococci, as shown in Fig. 2; and, moreover, it might be expected to produce the sharp line of demarcation between inhibited and uninhibited meningococci which is a rather striking feature of these crosswise planting experiments (*vide* Figs. 1 and 2).

Direct evidence of such a poisoning or bactericidal process was obtained by working with fluid cultures of pneumococcus. A well-grown culture in glucose-ascitic-broth was sterilised by heat, or filtered, and then inoculated with a certain number of meningococci. By testing samples of this for sterility at appropriate intervals it was found that, unless too large a number had been implanted, the meningococci were completely killed off within a short period of exposure to the pneumococcus-poisoned broth. From an average of several quantitative experiments it appeared that at least 40,000 cocci were thus killed within an hour by 1 c.c. of the pneumococcus broth. The details of the experiment were as follows:—

Broth suspensions of convenient strength were prepared from a very young meningococcus culture; and the living cocci in them enumerated by spreading small sample volumes—after appropriate dilution—upon agar surfaces, and counting the colonies which resulted. 10 c.mm. volumes of these broth suspensions of meningococci were mixed with ½ c.c. volumes of a glucose-ascitic-broth culture of pneumococcus previously sterilised by heating at 54° C. for an hour, or a sterile filtrate of such a culture. After incubation for half an hour or an hour,[1] 10 c.mm. volumes were withdrawn from each of the tubes and tested for sterility by planting in 10 c.c. of ascitic broth. This quantity—10 c.c.—was chosen in order to dilute 1000-fold any inhibitory substance which might be carried over in the 10 c.mm. volumes to be tested, such a dilution having been previously found more than adequate to render the inhibitory substance in fluid cultures ineffective. These 10 c.c. test volumes of ascitic broth were contained in small flat-bottomed flasks in preference to test-tubes for the better aeration of the medium—a point of some importance in making fluid cultures from a small sowing of meningococci.

As was stated summarily above, the usual result of these tests was that the 10 c.mm. samples carried over no living meningococci into the ascitic broths, which remained sterile, except in the case when more than 30,000 or 40,000 cocci had been originally introduced into the ½ c.c. volumes of pneumococcus culture. By way of control to this experiment it was necessary to show that the medium (glucose-ascitic-broth) which had, apparently, been rendered bactericidal to meningococcus by the previous growth of pneumococcus in it, was not itself contributory to their rapid death. For that purpose samples of the broth were inoculated with meningococci and incubated for an hour precisely as in the case of the heated pneumococcus culture, but instead of being simply tested for sterility after the period of incubation it was submitted to a count of its living cocci, both before and after that period, by the method described above for enumerating the meningococcal suspensions. The result of these control experiments showed—as was to be expected—a slight increase, rather than any diminution, of the living organisms within the period of incubation.

Little is yet known in regard to this bactericidal process. That it is not dependent on acid formation by the pneumococcus is shown by the fact that on medium free from sugar that microbe produces no acid and yet inhibits meningococcus strongly. Nor is it dependent on the presence of serum or serous fluid in the medium. All that can be positively stated at present is that the bactericidal agent, whatever it may be, is filterable, and is inactivated at a temperature of between 70° and 80° C. I have been unable to find any evidence that it exerts a lytic effect upon the meningococcus.

Antagonism among bacteria has been recognised for many years. Kitasato[2] in 1889 drew attention to the fact that several microbic species are prevented from growing, and even killed, by the contiguous growth of the cholera vibrio, while that microbe in turn is inhibited by the bacillus pyocyaneus. Later it was shown that the bacillus pyocyaneus is also—and in greater degree—antagonistic to the diphtheria bacillus. In 1903 Lode[3] published a description of a certain large coccus isolated from the air which exerts a strong inhibitory influence upon the growth of such diverse organisms as the bacilli of anthrax and chicken cholera, the staphylococcus, and the micrococcus tetragenus; and also a somewhat less potent effect upon the bacillus typhosus and the cholera vibrio.

With two of these organisms—viz., micrococcus tetragenus and the bacillus of chicken cholera—he was able to show that the inhibition was dependent upon a definite bactericidal action exerted by the medium in which the coccus had grown—the

[1] A longer exposure to the action of the pneumococcus culture would have rendered the result fallacious owing to the notable tendency of meningococcus to die very rapidly in any medium which is not actually favourable to its growth.

[2] Kitasato: Zeitschrift für Hygiene, 1889.

[3] Lode: Centralblatt für Bakteriologie, Orig., Band xxxiii.

bactericidal agent being a filterable and dialysable substance inactivated at a temperature of 97° C.

It is in connexion with its power to check the growth of the cholera vibrio, however, that this coccus has chiefly claimed attention. Metchnikoff[4] has long entertained the idea that individuals who escape cholera, when that disease is rife in a community, may owe their protection to the presence in the intestinal canal of these air-borne cocci or of other organisms, like bacillus pyocyaneus, antagonistic to the development of the vibrios. This suggestion was recently taken up by Choukevitch,[5] who infected with cholera vibrios several rabbits which had previously ingested large numbers of the "anti-cholera" cocci with their food. Although the rabbits developed cholera and died like the control animals no inference could be drawn from the experiment, since post-mortem examinations did not indicate that the "anti-cholera" cocci had been able to survive in large numbers and maintain a vigorous growth in the intestinal canal.

Whether or not the future will establish this conception with regard to cholera it would seem probable that the principle of bacterial antagonism will be found to have other, and perhaps therapeutically useful, applications in the wide field of microbic infections. Two examples readily suggest themselves in connexion with meningococcus infections. First, it may well be that the presence of meningococcus-inhibiting pneumococci or streptococci on the nasal and pharyngeal mucous membranes will determine the fate of a small number of meningococci deposited there from the inspired air. And secondly, the observations recorded in the first paragraph of this paper suggest that the operation of antagonism may sometimes effect the "cure" of meningococcus carriers.

From this the question arose whether one could bring about a similar "curative" procedure at will. The application of a filtrate of pneumococcus culture, however strongly bactericidal to meningococcus, could not be expected to give any better success than the use of antiseptics, which apparently fail of their object because they do not gain access to all the meningococci. It therefore seemed necessary to implant a living culture of the inhibitory microbes upon the naso-pharynx, in the hope that these would be able to establish themselves and spread over all the area invaded by the meningococci. The pneumococcus culture with which most of the inhibition experiments had been performed had come from a healthy ex-meningococcus carrier, with no history of pneumonia, and had, since its isolation, been passed through 20 or 30 generations on artificial media.

These considerations, and the fact that the pneumococcus is usually present in the normal respiratory passages, led me to regard its use as quite devoid of danger. Broth cultures of it were sprayed first on the naso-pharynx of my fellow worker, Dr. Harold Tanner, whose help in this part of the inquiry I wish here to acknowledge, and subsequently on five carriers, with and without preliminary sterilisation of the naso-pharyngeal surface by silver iodide. To our surprise we found that the pneumococci were apparently unable to establish themselves in the naso-pharynx of these carriers, for although implanted in very large numbers they could not be recovered in any quantity from swabs taken after a few hours or on the following day. In the case of another carrier we implanted streptococci grown from his own saliva, but these also seemed unable to gain any hold in the naso-pharynx. Apart from their "taking root" and multiplying in the naso-pharynx, it was not to be expected that the pneumococci or streptococci introduced would have any inhibitory effect upon the meningococcus established there, and in five of the six carriers no evidence of such an effect was noticed. In the sixth case the pneumococci probably gained a slight hold at first, for the meningococci almost disappeared from swabs for nearly two days, but after that time regained their earlier predominance. This last partial success seems, at any rate, to suggest that, with more knowledge of the precise conditions which enable the inhibitory organisms to establish themselves, the method might prove of some value.

My thanks are due to Captain S. R. Douglas for helpful criticism and counsel in connexion with this work.

St. Mary's Hospital, W.

[4] Metchnikoff: Annales de l'Institut Pasteur, 1894.
[5] Choukevitch: Ibid., 1911.

BLACKWATER FEVER.

BY R. W. BURKITT, F.R.C.S. IREL.

THE following, which is a report to the principal medical officer of British East Africa on my findings and treatment in blackwater, may be of interest.

The patient, an intelligent European aged 53, had blackwater some four or five months ago, for which I attended him. For the last four months he had been living in a malarial district and had been having a lot of fever. On Sept. 12th he took 20 grains of quinine hydrochloride; this brought on blackwater in a few hours. With it came vomiting, diarrhœa, and jaundice. He knew in a common-sense way how to treat himself before my seeing him. He was brought into Nairobi on the morning of Sept. 14th, some 40 miles in a motor-car. He brought in with him his urine of the 13th. The urine of the 13th and the 14th contained both oxy- and met-hæmoglobin.

I had been noticing for the last year that all blackwater urines are excessively acid. This man's urine of the 13th and the 14th contained an enormous quantity of acetone, and showed the aceto-acetic acid reaction very markedly. These samples were highly acid by litmus paper. His kidneys are quite sound.

At midday on the 14th, as soon as I found the acetone, I began giving potassium bicarbonate ℥i. every hour in heaps of water; he was able to keep down six doses. I then lessened the dose and gave sodium bicarbonate, with the result that he passed urine very freely, and next morning his urine was strongly alkaline, with not a trace of hæmoglobin, but still with a small quantity of acetone. He was feeling much better, his jaundice was clearing, he was passing large quantities of urine, his spleen was less tender, and his diarrhœa was almost gone (this went *pari passu* with the acetone). On the 16th there was no hæmoglobin and no acetone; he was much better and was hungry. The urine was decidedly alkaline. (Note that the hæmoglobin disappeared 24 hours before the last trace of acetonuria.)

It will be seen that I gave $CaCl_2$ as a set-off to potassium and sodium—they all three are blood alkalinisers. As soon as acetone was gone I put him on increasing doses of quinine. When last I treated this man for an attack of blackwater fever $CaCl_2$ (which is an alkaliniser, but not nearly so strong as potassium) apparently prevented hæmoglobinuria from recurring.

His history was as follows: I found him suffering from fever and very ill (he had been having fever for months). I gave him an injection of quinine gr. xx. at 10 A.M. and told him to drink plenty of water. At 5 P.M. he was passing urine as black as ink and was very ill indeed. I gave him $CaCl_2$ ℥i., which he kept down. Next morning the blackwater was gone. I then gave an injection of quinine gr. xxv., and he took $CaCl_2$ gr. xx. every two hours for four times. He drank large quantities of water, tea, and coffee. With this larger dose of quinine he showed no sign of blackwater.

The argument seems to be that the $CaCl_2$ stopped the blackwater reappearing, neutralised or partially neutralised the acid poisoning. At the time I did not recognise it to be due to acid poisoning; I merely found by experience that calcium chloride did good, and have been giving it freely in these cases. This history, in connexion with the present attack and its findings and treatment, suggests strongly that a lessened alkalinity of the blood is a by-product of the condition preceding hæmoglobinuria, and that this by-product, when it reaches a certain figure, causes a breaking-up of the blood elements. Acid poisoning, a greatly lessened alkalinity of the blood, shows itself by the presence of acetone and aceto-acetic acid in the urine. Its common symptoms are vomiting, diarrhœa, and diminished or no urine.

In THE LANCET of July 31st, 1915, Sir Leonard Rogers writes an article of extreme interest on a lessened alkalinity of the blood being the cause of uræmia in cholera, and shows that until this lessened alkalinity (acid poisoning) is neutralised by the giving of very alkaline venous infusions the kidneys will not act. I myself remember often giving 10 pints of saline intravenously to anuric cholera patients and being perplexed as to why it had no effect on the kidneys. Rogers's instruction in these anuric cases of cholera is: Begin with his hypertonic solution, then give 1 pint containing sodium bicarbonate gr. 160 and sodium chloride gr. 60, and then finish up with his hypertonic solution to the amount thought fit. This may have to be repeated many times according to the amount of acid poisoning present.

I suggest from the arguments adduced that the same holds true for blackwater. I submit that the neutralising of this by-product, this acid poisoning, is the first thing to be done in blackwater, and then the originating cause be dealt with. In the presence of this acid poisoning quinine, like any other devitalising factor, is merely the final determining cause of the breaking up of a blood which is ready to hæmolyse and merely requires "the last straw."

In this connexion I remember seeing a case of blackwater last year, which I did not report as I was only connected with the last stage of it.

A European, a robust, temperate man aged 30, was living for some time in a very unhealthy part (Embu) of this Protectorate. He suffered there continually from malaria and ended in blackwater. He was treated at Fort Hall and recovered. He came into Nairobi and told me his history. He was looking dreadfully ill. I gave him neosalvarsan intravenously. This brought on hæmoglobinuria temporarily, with rigors. It passed off in a day. In three weeks time he was so fit that he joined the East Africa Mounted Rifles. He put on flesh daily; from being a skeleton he weighed 14 st. He has told me that since this infusion he has never been so well in the tropics. I gave him quinine for three weeks also.

Now I believe that if I had given this man alkalies (to neutralise his acid poisoning) before the neosalvarsan he would not have had this temporary blackwater. Here the temporary devitalising effect of the neosalvarsan in the presence of acid poisoning was "the last straw"; it did away (in combination with quinine) with the originating cause, but not with the by-product. Following the same reasoning I can quite understand in very severe acid poisoning an infusion of neosalvarsan causing death if the by-product was not first neutralised or partially neutralised by an infusion of alkalies or alkalies by mouth.

I remember examining and being astonished at the acidity of this man's urine, as I have been with every other case of blackwater which has come under my notice. Previous to an attack of blackwater fever and after its subsidence I have always found the urine highly acid. On four occasions I have examined the urine within 24 hours before the attack. I would now expect to find acetonuria both before and after an attack, and I would also argue that as long as there is acetonuria present blackwater is liable to occur on receiving any devitalisation.

Sodium bicarbonate has been regularly prescribed by some in blackwater, always empirically. It was found even in the small doses given to be of advantage. If my arguments are sound the rationale of it is evident.

In the present case, although this attack was much more severe than the former one, he got well and strong very much more quickly. I put this down to his acid poisoning being quickly and thoroughly neutralised. In the second attack I was acting intelligently, I was treating a definite cause; in the first I was acting empirically. Calcium chloride, used in the first attack, is not, I understand, nearly so powerful a blood alkaliniser as potassium bicarbonate, which I used in the second. In former reports I have recorded that large intravenous infusions of Rogers's hypertonic solution caused a liberal secretion of urine where there was none or very little. I now see this improvement was caused by partial neutralising of acid poisoning by the salts in this solution.

As to the treatment of the originating cause, I believe neosalvarsan intravenously is the most powerful factor we have in destroying it. I always give quinine either after it, or before, or both—one helps the other. The most prominent feature in those cases of blackwater to which I have given neosalvarsan is their extraordinarily quick recovery to robustness and their subsequent good health. (I have not given all my cases neosalvarsan, as it is at present too precious. I give it only in very severe attacks.)

In this connexion three weeks ago a case of this disease, which had just recovered from an attack at Fort Hall, came in to me.

The patient was looking dreadfully ill, just as if on the verge of another attack. I put him at once to bed in a nursing home. That night his temperature ran up to 105° F., he became as yellow as a guinea, and his spleen went down to his umbilicus and became very tender. His urine showed a lot of bile; it was highly acid. In fact, he escaped another attack by the skin of his teeth. I gave this man neosalvarsan and increasing doses of quinine; he is now in good health and back at his farm (three weeks). He had been advised to go for a sea voyage to recover. He certainly would have died before he ever got on board. The originating cause has now been eradicated.

By the same token I do not think Professor Ehrlich's speech in London, August, 1913, is generally known, in which he stated that one injection of neosalvarsan destroys quinine-fast malignant tertian parasites. I would here say a word against giving neosalvarsan by intramuscular injections. Some half-dozen men have come to me in the last year with permanent arsenical neuritis of the sciatic nerve, with atrophy of the whole leg and with incurable ulcers of the foot, corresponding to the buttock injected.

A week ago I reported a blackwater case in a European woman who vomited almost continually for five days, and for four days after the act hæmoglobinuria had disappeared. During thi I gave her three large drinks of Rogers's tonic solution by the vein without which most certainly have died of thirst. A

infusion she was very much better and the vomiting abated markedly for some hours; this in my present knowledge was a partial neutralising of an acid poisoning, which was causing the vomiting. I mention this case now to show how utterly helpless one is without proper venous apparatus in a bad case of blackwater, and how essential it is for every medical man in a blackwater country to have them. With them, in my opinion, one has complete control over the course of the disease.

Nairobi.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

A NOTE ON

FOUR POST-MORTEM EXAMINATIONS IN WHICH RUPTURE OF THE INTESTINE WAS FOUND ALTHOUGH THE COURSE OF THE PROJECTILE WAS EXTRAPERITONEAL.

BY W. C. B. MEYER, M.B., CH.B., F.R.C.S.,
CAPTAIN, R.A.M.C.;

J. W. DEW, M.B., B.C., M.R.C.S., L.R.C.P.,
LIEUTENANT, R.A.M.C.;

AND

A. STOKES, M.D., F.R.C.S.,
CAPTAIN, R.A.M.C.

DURING the last three weeks a series of cases has come to our notice in the course of doing routine post-mortem examinations which might be of interest to medical officers in charge of wounded. In two of the cases the projectile had exposed the peritoneum without injuring the membrane and the surgeon was therefore deterred from doing a laparotomy which he would have otherwise undertaken. The other two cases were not considered fit to undergo an operation. In each case the post-mortem examination revealed a contusion of the peritoneum, localised hæmorrhage, without any rupture being found, and yet there was a lesion of the intestine and an extravasation of the intestinal contents.

CASE 1 (under the care of J. W. D.).—There was an extensive wound of the lower part of the right abdominal wall about 4 inches square, the projectile had exposed about 2 inches of the peritoneum and the cæcum was apparent through the membrane. The wound extended down to the crest of the pubic ramus, and the periosteum was stripped off the bone; the fragment was not found as it had become embedded in the muscles of the thigh. At the operation the peritoneum was carefully examined, and no opening being found nothing more than a cleaning and draining operation was performed. Signs of peritonitis developed in two days, and the patient died on the third day.

Post-mortem examination (by A. S.).—The peritoneum was found to be intact, care being exercised to determine this point, and no lesion could be found. There was localised pelvic and right iliac peritonitis, in no way generalised but localised in pockets between the coils of intestine and sealed off by the omentum. The small intestine was much distended. A portion of the ileum, about 2 inches long, was found which was a dark plum colour and had lost its tone; in the centre of this piece of intestine was an oval tear; this was about 6 inches from the ileo-cæcal junction. All the other organs were normal.

CASE 2 (under the care of W. C. B. M.).—Bullet wound of the left buttock 1 inch below and 3 inches internal to the ſ the great trochanter, exit explosive in the left groin an elliptical wound exposing the inguinal region ½ above Poupart's ligament. Operation consisted in removal of the left testicle and the cleansing and draining of the wound. No lesion of the peritoneum being found, a laparotomy was not performed, although that was the original intention of the surgeon. Symptoms of peritonitis set in on the second day and the patient died on the fourth day.

Post-mortem examination (by A. S.).—Marked peritonitis was found in the pelvis and left flank, to which region it was localised. A tear of the bowel was found about 9 feet from the cæcum; the intestine for a short distance round the tear had the appearance of a loop of gut taken out of a strangulated hernia, being partially gangrenous. There was no other abdominal lesion found and all the other organs were normal. There were a number of small hæmorrhages round the internal abdominal ring and a generally bruised appearance of the peritoneum was noted. The peritoneum was intact, and prolonged search for a point of entry of the bullet failed to reveal any such point. The course of the bullet was traced from behind forwards and it was found to have passed between the pelvis and the neck of the femur; it had just grazed the lower border of the acetabulum, from which small splinters had been torn off and were found lying in the track of the bullet. The man was hit while in the squatting position, repairing the wire entanglements.

CASE 3 (under the care of W. C. B. M.).—A man, shot through the left buttock at the junction of the posterior and middle thirds of the line joining the anterior and posterior spines of the ilium. Exit wound was 2½ inches by 1½ inches, elliptical in shape, in a corresponding place in the right buttock immediately above the great trochanter. The man was admitted in a state of extreme collapse and died in a few hours.

Post-mortem examination (by A. S.).—Peritoneal cavity contained a large quantity of fluid intestinal contents which had escaped from a small tear of the small intestine. This tear was situated at the mesenteric margin of the bowel, about 6 inches from the cæcum. There was only one wound of the bowel, and if it had been done by the direct contact of the bullet there must necessarily, from the position of the tear, have been two wounds. There was no blood in the cavity. A small muscular tear of the pelvic colon was found, but the peritoneum over the tear was intact and a small bubble of gas that had escaped through the tear was seen under the peritoneum and could not be forced out. The bullet track was found to pass across in front of the sacrum, exposing bare bone; there was some retroperitoneal hæmorrhage. No perforation of the peritoneum could be found, though a point of entry was carefully looked for.

CASE 4 (under the care of J. W. D.; post-mortem examination by A. S.).—A man, admitted pulseless and vomiting, died within a few hours. Wound on the right buttock about 2 inches internal to the tuber ischii, with the track leading across the middle line to an exit wound in the lumbar region on the left side of the third and fourth lumbar spines 2 inches from the middle line. The exit wound was lacerated, circular, and 4 inches in diameter. The bullet had comminuted the sacrum and opened the lower end of the spinal canal, had then passed upwards along the groove between the sacrum and the right ilium; a part of the sacrum had been driven forwards towards the pelvis. The abdomen contained some fæces, but there was no intraperitoneal hæmorrhage. Some coils of small intestine drawn up from the pelvis showed evidence of severe bruising, the intestine being of a dark purplish colour. The pelvic colon had a small tear admitting the top of a pencil; this was situated about 5 inches above the junction with the rectum. The mesentery of the pelvic colon was uninjured, but the wall of the bowel showed the same bruised appearance as was noted in the small intestine on each side of the tear for a distance of about 2 inches. The pelvic peritoneum was not injured and no communication could be found with the wound in the sacral region. There were no foreign bodies, such as particles of bone, in the pelvis. All the other abdominal viscera were normal; the only sign of injury was near the lower pole of the left kidney where there was some subperitoneal hæmorrhage which had clearly tracked through from the exit wound.

In conclusion, we do not in any way attempt to explain these findings, but only suggest that the results are perhaps due to concussion effects. The conclusion we draw from the series of cases is that the fact of not finding a perforation of the

peritoneum is not a contra-indication to laparotomy, more especially when the clinical features point to the presence of some intraperitoneal lesion.

We owe our thanks to Lieutenant-Colonel W. Way, R.A.M.C., and Lieutenant-Colonel E. W. P. V. Marriott, R.A.M.C., for permission to publish the cases.

1000 DOSES OF PHENOLPHTHALEIN.

BY J. C. MCWALTER, M.D. DURH., F.R.F.P.S. GLASG., D.P.H.,

EXAMINER IN MATERIA MEDICA AT APOTHECARIES' HALL, DUBLIN.

INTESTINAL stasis is now made accountable for many ills, and the vogue of the motor-car and the electric tram makes walking a thing of the past. There are those who believe that appendicitis results from constipation, and certainly the laity look on daily evacuations as the first object of him who would attain health.

Distinguished surgeons are prone to write up their first hundred cases of operations for proctitis, or whatnot, and it may be permitted the mere practitioner to record the results of some hundreds of doses of a given drug. I have prescribed rather more than 1000 doses of phenolphthalein, and find it probably the most useful laxative in the Pharmacopœia. It is a crystalline, odourless, coal-tar product of the formula $C_{20}H_{14}O_4$, slightly soluble in water, freely soluble in alcohol, and giving a beautiful pink colour with alkalies. The dose for children is ½ to ¾ of a grain, and for adults 2 to 6 grains. I have given it usually in doses of about 1½ grains, repeated from two to three times a day; it produces loose motions in from four to six hours after a dose of 3 to 4 grains, but where smaller doses are given it brings on a natural or somewhat soft and copious evacuation only once or twice daily. It is singularly painless as a rule. This is its chief advantage. Further, it does not seem to lose its effect, at least, until it has been persisted in for a considerable time. Some observers state that it occasionally becomes absorbed, acting on the kidneys and causing backache, but I have not observed this in small doses. Its action is very much like that of cascara sagrada, but probably more active and less griping. I have given it in many cases of pregnancy, and it seems almost an ideal laxative for that condition. It should not be given in tablet form unless mixed with chocolate, but it may be given in powder or in cachets.

It seems to me that phenolphthalein is particularly useful in cases of intestinal toxæmia. It appears to offer almost ideal advantages as a medicament in these cases, because obviously what is required is a mild antiseptic, capable of being taken for a considerable period without toxic or cumulative effects, and yet free from those irritating effects on the mucous membrane of the intestine which render most purgatives harmful in such cases. In chronic muco-membranous colitis the use of intestinal antiseptics is generally disappointing, but I think that phenolphthalein will be found, in doses of half a grain thrice daily, eminently satisfactory in preventing enterospasm, easing pain, checking the excessive secretion of mucus, improving the neurasthenia, and generally improving the patient's condition. Like all drugs of its kind, phenolphthalein has become much dearer since the war, but the dose being so small the actual cost is negligible.

Dublin.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF OPHTHALMOLOGY.

Exhibition of Case.—Eye Lesions and Trypanosome Infection.—A Fallacy in the Diagnosis of Glioma Retinæ.—Late Results of Operative Treatment of High Myopia.

A MEETING of this section was held on Nov. 3rd, Mr. PRIESTLEY SMITH, the President, being in the chair.

The PRESIDENT made sympathetic reference to the recent death, after an operation, of Mr. George Coats, of whose scientific contributions he spoke very highly. Mr. Coats acted as honorary secretary to the last Congress of the Ophthalmological Society, and carried out the duties with great thoroughness and every courtesy.

Captain A. W. ORMOND showed a case which exhibited associated movements of jaw and eyelid, and discussed the probable etiology, based on Bishop Harman's work.

Dr. C. W. DANIELS contributed a paper entitled, "Eye Lesions as a Point of Importance in Directing Suspicion to Possible Trypanosome Infection." He pointed out the practical importance to be attached to the eye lesions as a diagnostic sign of infection with trypanosomes, inasmuch as, in some cases, they first determined the patient seeking medical advice. The common manifestation was an iridocyclitis, while a pronounced œdema of the lower eyelids was not rare. Choroiditis was less frequent. The incidence of the eye lesions stood in direct relationship with the severity of the infection. Thus, in Rhodesian trypanosomiasis the eyes were affected in 83·3 per cent., in Nigeria cases in 40 per cent., and in cases from Uganda and other parts of tropical Africa 18·7 per cent. The mortality from the disease in those three regions was respectively 100 per cent., 30 per cent., and 18 per cent.—Mr. LESLIE J. PATON, who read the paper in Dr. Daniels's absence, discussed the matter, and referred to Mr. S. H. Browning's work in regard to the blood changes found in sympathetic ophthalmia.

Mr. SYDNEY STEPHENSON read a communication entitled "A Fallacy in the Diagnosis of Glioma Retinæ," describing the clinical and pathological details of two cases, both in young children, whose blind eye was excised under the impression that it contained glioma. It was found, however, that it was affected with the rare disease retinitis exudativa (retinitis hæmorrhagica externa). Mr. Stephenson laid stress on this possible source of confusion.—The paper was discussed by the PRESIDENT, Mr. TREACHER COLLINS (who suggested useful diagnostic signs for differentiation), Mr. STEPHEN MAYOU, Mr. J. B. LAWFORD, Mr. W. H. H. JESSOP, Mr. A. B. ZORAB, and Captain ORMOND.

Dr. A. HUGH THOMPSON read a paper on Late Results of the Operative Treatment of High Myopia. He said that five years ago he published some notes based on his experience of 20 myopic eyes, the clear lenses of which he had needled with the object of making the refraction approximately emmetropic. His purpose now was to relate his further experience of such of those cases as he had been able to keep in touch with. During the last five years, in common with many others, he had been chary about recommending this operation, though he still maintained that in carefully selected cases the treatment was a good one. As one could not be certain about the future of these eyes the procedure should not be pressed upon any patient, for one could not promise cure, and the eye was left just as liable as ever to those destructive processes which attacked highly myopic eyes. The degree most suitable for operation was 16 to 22 diopters. In young children, whose myopia was certainly progressive, a limit of 14 D. might well be assigned. With a myopia of more than 22 D. the chance of the eye remaining free from destructive processes was small. His method had been a free needling of the lens capsule, after which it was necessary to watch the patient carefully day by day, and in the event of a rise of tension let out the lens matter by means of a keratome incision through the cornea. Should a secondary membrane form some years after this must be needled. He had been able to follow up 14 cases during periods of 5 to 15 years. Only one was operated upon in both eyes, and he did not think the advantage justified the double operation. In all the 15 eyes the result of the operation was good, and the subsequent results he tabulated

in detail. Two-thirds of the cases, after an average period of eight years, had materially better vision than before the operation. In not one of them had he to deal with a detachment of the retina as a sequela to the operation, though it was well known to occur occasionally. He did not think the operative treatment of high myopia tended to counteract the increase in the long axis of the eyeball, though obviously the removal of the lens had the effect of diminishing the result of the lengthening of the axis of the eyeball on the refraction by about one-half.—An interesting discussion ensued, which was taken part in by Dr. T. HARRISON BUTLER, Mr. R. J. COULTER, Mr. ARNOLD LAWSON, Mr. JESSOP, Mr. W. T. HOLMES SPICER, Mr. ZORAB, and the PRESIDENT.

MEDICAL SOCIETY OF LONDON.

Discussion on Gunshot Wounds of the Head.

A MEETING of this society was held on Nov. 15th, Dr. W. PASTEUR, the President, being in the chair.

Mr. PERCY SARGENT (Temporary Lieutenant-Colonel, R.A.M.C.), in opening a discussion on Gunshot Wounds of the Head, said that in the case of head injuries the need for early operation was not so pressing as in abdominal injuries. Head cases travelled well and did not appear to be adversely affected by the journey. On the other hand, they did not bear transport well immediately after operation, and those operated upon ought to be kept where they were for at least a week. In time of stress this was practically impossible near the fighting line. He did not suggest that early and efficient cleansing of head wounds was not important, but procedure directed to this end alone was on quite a different footing from an operation undertaken for the relief of cerebral symptoms and for the removal of bone fragments and missiles without the aid of an X ray examination. Gunshot wounds must be regarded from two points of view: First, the neurological, and secondly, that of a compound fracture. Compound fracture was an almost constant factor; the cerebral injury might be so slight that no evidence of its existence could be detected, or the clinical signs might point to widespread disturbance of function of every sort and degree. In point of severity there was no constant relationship between the cranial and the cerebral injury, and cerebral symptoms were not wholly dependent upon the existence of a cranial lesion; the two were co-existent but not interdependent. Once the blow had been struck, the relationship between cranial and cerebral injury ceased, and nothing that was done to the wound could influence those cerebral symptoms. So long as the dura was uninjured this rule remained true. When, however, the dura was lacerated so as to open up an avenue for infection, then what was done to the wound, whilst not influencing the initial cerebral lesion, might, by diminishing the chances of intradural infection, prevent or minimise further the destruction of brain tissue. In gunshot wounds of the head subdural hæmorrhage of such a degree as to cause, of itself, symptoms of any severity, or to require operation, was very rare. In some six cases, which they had observed, it had manifested itself slowly, and had given rise to unmistakable symptoms. Exploratory operations for possible hæmorrhage had no place in the treatment of gunshot wounds, especially as such wounds were invariably septic, while opening the dura in their presence carried with it very great danger of meningeal infection. If operation were undertaken it should be done to assist healing of the wound and to minimise the danger of the intracranial suppuration, which was the cause of death or of further disablement in nearly all those cases which survived the initial cerebral injury. He spoke of the different kinds of cases met with. First, at the field ambulance and clearing stations many patients arrived with extensive defects in scalp, bone, and dura, from which large masses of brain protruded and from which brain matter, blood, and cerebro-spinal fluid issued. Most of these were either deeply unconscious or very restless, and they died in a few hours. Clearly this class of cases was excluded from the scope of operation. In some similar cases, however, careful examination revealed that although the amount of brain matter lost was large, yet the injury was less than seemed at first sight. After a few hours, improvement began, the cerebral shock passed off, and recovery was not impossible. These should have the wound cleaned under an anæsthetic, and perhaps its edges should be excised, but no intra-cerebral manipulation involving a search for bone fragments or missiles should be undertaken, especially if radiographic examination was not available. Secondly, there was the common case of a tangential wound with cerebral laceration, where the scalp defect took the form either of two wounds separated by a bridge of skin or of an open gutter. These generally needed operation. Thirdly, the single penetrating wounds through which a missile might or might not have entered, determinable only by X rays, usually required operation. Fourthly, came cases in which a bullet had traversed the cranial cavity from side to side. They showed that at certain ranges, where the velocity was still sufficiently high to allow the bullet to traverse the cranial cavity and to emerge therefrom, as well as in cases in which the velocity was so low that the bullet was retained within the skull after traversing the brain, no explosive effect could be demonstrated, for patients in both classes often exhibited no symptoms or neurological signs whatever. They rarely required operation, and many recovered by dressing merely. Fifthly, there was a large group with injuries to the superior longitudinal sinus. Operation upon them had given very bad results, and they should be left alone unless some other condition was added. Sixthly were the minor injuries in which a fracture existed without laceration of the dura. Traumatic epilepsy in such cases resulted from the subcranial damage sustained at the time, rather than to the mere presence of the injured bone, and consequently if all such were operated upon, many of the operations were unnecessary. Mr. Sargent operated upon depressed fractures, as a rule, only when they were of considerable extent, and when the broken bone, exposed at the bottom of a septic scalp wound, threatened to become necrosed and delay healing. Discussing whether operation should be performed immediately or after an interval, he said that immediate operation could only be required in the very rare cases in which progressive hæmorrhage threatened life from cerebral compression. At a later date progressive neurological symptoms when due to hæmorrhage or suppuration might call for operative relief, and therefore the question arose whether these later complications could be avoided by earlier operation. Early experience in the war showed that a large proportion so treated died later from meningitis because of the ease with which the subarachnoid space can be infected and the tendency to the formation of hernia. Subsequent experience had shown that delay lessened these dangers. There was some risk in allowing bone fragments to remain buried in the brain, because an infective encephalitis might spread from such a focus and might reach the ventricles. The two dangers—those of meningitis and hernia—attendant upon the earlier operation, and that of ventricular infection which beset delay, had to be balanced against one another, but his experience from a large number of cases had shown that the former predominated. The best time for operation was from two to four days from the date of the wound, during which time the patient could be transferred to the base, an X ray examination made, the head shaved, and the wound and scalp thoroughly cleansed. Such evidence as he had obtained seemed to show that bullets and fragments of shell were best left alone, unless they were so situated as to be easily removed with the bone and fragments, or unless they subsequently caused symptoms directly referable to their presence. The symptoms which existed at first were not due to the mere presence of a foreign body; they depended upon the damage done during its introduction, and its removal would not only fail to effect an improvement, but by causing additional damage would be more likely to aggravate the symptoms. Such foreign bodies were not always septic. If septic complications occurred later they were more likely to arise in some part of the track of the missile, where hairs and other septic material had been implanted, than to take the form of abscess or diffuse cerebral softening. The question of removal was further influenced by the nature, position, and number of the metallic foreign bodies. Many lay in positions considered inaccessible to surgery. More than one patient had died as the direct result of operating for removal of such foreign bodies, and many patients in whom removal had not been attempted had been sent to England with good prospects of recovery, and had since been progressing favourably, their wounds having completely healed. In all wounds in which the dura had been torn and the brain

lacerated, the primary object of any operation was to remove infective material and to provide efficient drainage. When the dura was not lacerated it was an exceedingly dangerous proceeding to incise it, and one which was uncalled for except in a very small number of cases. It was unjustifiable unless there were an extensive subdural hæmorrhage. When the missile or bone fragments had caused a laceration of the dura it was similarly dangerous and almost as unnecessary to enlarge the dural opening. If these cases exhibited signs of a dangerous degree of intracranial pressure, lumbar puncture or a contralateral decompression operation afforded a much safer and an efficacious mode of relief. Glancing wounds with laceration of the dura and brain, being commonly produced by rifle bullets, were comparatively clean, and the bony fragments were not driven in to any great depth. On the other hand, when the splintered bone had been removed the dural tear and lacerated brain were often seen to be considerable in extent, and if such an area of damaged brain were left exposed, suppuration was prolonged and hernia cerebri was likely to form. Mr. Sargent then described the means which had been devised for covering in this damaged brain, whilst providing for free drainage. Briefly, the gap which resulted from excision of the original wound was closed by a flap of muscle or of pericranial or aponeurotic tissue. The operation was modified to suit the case of a penetrating wound in which the dural opening was small, but where the cerebral laceration extended relatively deeply and bony fragments had been driven in for a distance of from 1 to 2 inches.

Dr. GORDON HOLMES (Temporary Lieutenant-Colonel, R.A.M.C.), who had collaborated with Mr. Sargent in his work in France, said that the main aim had been to establish efficient drainage. Infection was always present by the time the patients could be dealt with. Such remarks as they could make were only of relative value for those working at home, as the conditions and objects were different. It was their object to place the patients in such a condition that they could be safely evacuated to England. They had found it advisable either to leave head cases alone or only to operate in the presence of clear and emphatic indications. Foreign bodies were well left alone. Many head injuries could be dealt with more successfully at home, after the scalp had healed. It was more dangerous to operate with the idea of preventing problematical secondary effects than to refrain from operating.

Professor WILSON and Colonel Sir VICTOR HORSLEY, A.M.S., sent a contribution to the discussion. In their view the principles which should guide the treatment of head injuries in the field practically resolved themselves into those underlying our means, general or special, of preventing the spread of microbic invasion of the brain from the track of the projectile and the surfaces of the wound. Such means must depend upon our determination of two points: (*a*) What species of microbe were found in such wounds; and (*b*) what was the nature of the lesion they respectively produced. They had made, with the kind assistance of Lieutenant G. B. Bartlett, pathologist to the 21st General Hospital, Alexandria, many observations and determinations of the infections in a number of gunshot injuries of the head in the hospitals at Alexandria. From the cultures obtained from these cases they had carried out a series of experimental subdural inoculations in rabbits. Their conclusions tabularised were briefly as follows:—

TABLE I.

Microbe.	Average course of case clinically.
Staphylococcus albus.	Favourable.
Staphylococcus aureus, occasionally citreus.	Favourable (in uncomplicated infections).
Streptococcus.	Unfavourable.
B. choleræ gallinarum.	Variable (2 cases observed: 1 recovered, 1 died).

In each case the pathogenic activity of the microbe (obtained by aspiration with all precautions from the softened brain beneath the hernia cerebri, &c.) was established experimentally. The kind of cerebral lesions and the pathological changes observed clinically were reproduced with complete fidelity in the experimental inoculations with pure cultures and could be tabularised as shown in Table II. From the facts thus collectively stated it would follow that: (*a*) In all cases of gunshot injuries of the head a bacteriological diagnosis should be made. (*b*) That all cases of gunshot injury of the head should be disinfected actively and completely from the earliest possible moment—i.e., by excision of the primary wound, no closure of the wound, and by frequently repeated dressings soaked with antiseptic lotions; and that in any case in which streptococcal infection was found the free use of antistreptococcal serum was essential.

TABLE II.

Microbe.	Cerebral lesion.
Staphylococcus albus.	Slow localised cerebritis and small hernia cerebri.
Staphylococcus aureus, occasionally citreus.	Abscess formation with pyogenic membrane. Small or no hernia cerebri.
Streptococcus.	Acute cerebritis; progressive œdema of brain large hernia cerebri. Final stage internal hydrocephalus and ependymitis.
B. choleræ gallinarum.	Acute cerebritis with some abscess formation. Small hernia cerebri.

Mr. L. B. RAWLING (Temporary Major, R.A.M.C.) agreed that as his work was in England he was speaking from a totally different experience. He deplored the lack of coöperation between the surgeons abroad and those at home, the absence of notes of the cases which were sent home, and the impossibility of knowing what surgeon had operated previously, and thus of communicating with him. He considered that a certain proportion of those seen should have been operated upon earlier. The majority of the scalp incisions and the stitches were suppurating when the patients arrived. The cases with the lesser incisions were apparently more favourable than those in which larger ones had been made, and those in which the wound had been extended in various directions better than those with a large flap. The infectivity of the wound was such that primary excision was unsuitable. Those with smaller osseous defects were better than those with larger. He had found that if the herniæ of the brain were shaved off the condition recurred, and that the second protrusion was often worse than the first. The second protrusion generally included a distended horn of the lateral ventricle. He had consequently given up the method, and regarded the expectant attitude as the correct one. He had encountered foreign bodies in the herniæ, and could not but think that they should have been removed. This often had to be done afterwards, as they kept up the suppuration. He dissented from those surgeons who approved of the finger as a means of detecting what lay at the bottom of the wound and disapproved of the probe. The latter was preferable to the finger. Deeply-seated bodies obviously must be left. He had contented himself with removal of the more superficial, and the results had been favourable. His experience of paralysis following these injuries was that it only improved up to a certain stage. The outlook after cerebral injuries was somewhat gloomy, but excellent results had followed those in the frontal and temporo-sphenoidal regions. Every fracture of the external table was associated with a greater fracture of the internal, injury of the frontal sinus excepted. A common occurrence was for the patient to appear very well, but a small superficial septic wound existed, and a probe showed that a fracture was present. The pulse-rate was slow in proportion to the temperature, the blood pressure raised, headache was present, and the mental condition was not quite sound. One could not tell without exploration how serious the injury was. He urged that these cases should be operated upon sooner, and not left until they arrived in this country.

Mr. WILFRED TROTTER (Temporary Captain, R.A.M.C.) said that the point which had struck him most in the opening paper was that it was possible to leave so much of the nature of a foreign body in the brain. It might be the best procedure for a short time, but not for an indefinite period. He had been impressed by the frequency with which serious lesions developed and remained latent in the central nervous system. In view of this it was a mere assumption that patients who appeared well soon after the injury or who improved some months later could be regarded as cured. If the slightest evidence of a lesion persisted it should be dealt with. It was often assumed that hemiplegia was due to loss of brain substance, but probably any extensive hemiplegia denoted some hæmorrhage or skull injury.

After Captain SIDNEY SMITH, R.A.M.C. (T.F.), and Mr. W. PEARSON (Temporary Major, R.A.M.C.) had spoken, Mr. SARGENT and Dr. GORDON HOLMES briefly replied.

BRIGHTON AND SUSSEX MEDICO-CHIRURGICAL SOCIETY.

Treatment of Sciatica and Neurofibrositis by Injection.

A MEETING of this society was held on Nov. 4th, Major A. H. BUCK, R.A.M.C., the President, being in the chair.

Dr. WILFRED HARRIS, physician to St. Mary's Hospital, London, gave an address on the Treatment of Sciatica and Neurofibrositis by Injection. Dealing first with the treatment of neurofibrositis, he pointed out that the alcohol injection treatment appeared to have been first used in 1902. He said that alcohol destroys nerve tissues, so care must be taken as to what nerve is injected. The result of injection is to cause total palsy of both sensory and motor fibres of the nerve injected. Injection of the sciatic nerve causes total palsy of the leg by a process of neurolysis. This treatment is frequently useful in local neuralgias. Sciatica is often accompanied by neurofibrositis and alcohol injections are of use in treating this complication. The back, and particularly the region of the scapula, is a frequent seat of neurofibrositis. Injections should not be made when the case is first seen, but the ordinary methods of poulticing, heat, &c., should be tried first. In some cases, however, persistent pain is left behind, which may continue for weeks or even years, and these are the cases in which alcohol injection is useful. Injections should not be given if the tenderness is diffuse, but only if definite points of tenderness persist. Pain may radiate far from the exciting point—e.g., in some cases of dental neuralgia the pain may reach even the fingers. In operating the area is anæsthetised with novocaine, using first a fine needle and then a longer needle, which should be inserted down to the bone. From 7 to 10 m of novocaine solution are injected, and then some 10 m of alcohol through the same needle. Pain is not absolutely abolished by novocaine, but is rendered bearable. It is essential that the point of the needle should impinge against a rib, to avoid the risk of injection into the pleura, in cases of fibrositis in the thoracic region. If the painful spots are multiple, press firmly with a blunt pencil, marking for injection those spots pressure on which gives the sensation of a needle-prick. The greater the number of tender points the less likelihood is there of complete cure. The neck is a dangerous area to inject, and if injection is performed here several minutes should elapse between the injections of the novocaine and alcohol. If the injection of novocaine causes a numbing or paralytic effect down the arm do not inject with alcohol. Lumbo-sacral fibrositis with escape of the sciatic nerve is not uncommon. Plantar fibrositis is characterised by persistent pain succeeding some form of chronic rheumatism of gonorrhœal or other origin. Regeneration of nerve takes a varying time up to 12 months, by which time the fibrous tissues have become stretched. In the treatment of sciatica some non-destructive substance must be used for injection. Massive injections of saline solution into the nerve trunk are sometimes employed. This treatment is especially useful in sciatica of traumatic origin and in some rheumatic cases. Some cases of chronic sciatica in which there is great tenderness over the nerve or great pain on stretching the nerve may be suitable for injection treatment. If there is no pain on pressure this treatment is not likely to be successful. Many cases of sciatica are characterised by a hobbling gait. The patient walks with difficulty and leans over to the affected side. In a rarer but very interesting and well-marked group of cases the patient is bent over to the opposite side. If one tries to force him back the pain is increased. In operating, if the patient is nervous give ¼ gr. of morphia with hyoscine. Use a needle 4 in. long and enter it 1½ in. below the sciatic notch with 2 per cent. novocaine. Search with the needle-point for the nerve; when this is found the patient will complain of pain in the foot or calf. When sure that the point of the needle is in the nerve fit on a larger syringe and inject the normal saline solution, using 40, 50, or even 100 c.c. Injection of novocaine causes transitory anæsthesia of the great and small sciatic nerves—i.e., of the foot and leg up to the inferior gluteal notch. There is usually foot-drop. The local effect of the saline injection is an egg-shaped swelling at the site of injection, because the sciatic is a very loosely built nerve. By the explosive effect of the injection fibrous adhesions between the nerve fibres are broken down. In traumatic cases one definite point of tenderness, and in rheumatic several, may be found. In some patients pressure on the tender points causes pain down the leg. In these cases each spot of tenderness may be injected with alcohol as there are no nerve trunks here. Keep the patient in bed for at least 12 hours after the operation. If necessary give a second injection in from five to seven days, at a lower level.

The PRESIDENT remarked on the extraordinary radiation of pain from chronically irritated points, as in appendicitis. He discussed the dangers of broken needles in injection operations, and inquired as to the value of osmic acid in these cases.

Mr. H. N. FLETCHER inquired as to the risks of puncturing blood-vessels, and asked for information as to the site of injection in cases in which the brachial plexus is concerned.

Dr. W. BROADBENT mentioned cases of soldiers complaining of great tenderness in the sole of one foot, and asked for advice as to treatment.

Dr. D. G. HALL asked for the after-history of cases treated by injection. In his experience the pain frequently returned in spite of repeated injections.

Dr. E. R. HUNT quoted a case of neurofibrositis in which injection brought about entire freedom from pain for three months. In his opinion the relief afforded in these intractable cases was worth obtaining, even if the operation had to be repeated later.

Mr. G. MORGAN asked if Dr. Harris had ever used sulphuric ether for injection.

Dr. C. F. BAILEY suggested that the damaged tissues were stretched apart and destroyed in the interval between degeneration and repair of the nerves.

Dr. R. J. RYLE, Mr. C. N. CHADBORN, and Dr. HELEN BOYLE also spoke.

Dr. HARRIS, in his reply, said that he had not so far been unfortunate enough to have any trouble from broken needles. He used steel needles in preference to platinum ones, and gave a preliminary injection of morphia in nervous patients. In plantar fibrositis he advised Dr. Broadbent to inject the whole tract near the bone, as the pain is deep-seated. He had only seen one case in which really severe local damage was caused by alcohol injection. He advised Mr. Fletcher to inject at the point of damage or above it. He had not seen any untoward results from punctured vessels, and had found firm pressure sufficient to control any hæmorrhage. He thought the freedom from pain after operation should last from four months to five years. Anæsthetic effects have been noted 2½ years after operation. The paralysis wears off earlier. He strongly advised never using a general anæsthetic in these neuralgic cases.

The PRESIDENT proposed, and Dr. J. C. UTHOFF seconded, a vote of thanks to Dr. Harris for his interesting paper.

BRADFORD MEDICO-CHIRURGICAL SOCIETY.—The opening meeting of the session of this society was held on Oct. 19th. Owing to the absence at the front of Dr. W. Craig, the President, the inaugural address, on the Clinical Problems of Internal Secretions, was read by Dr. D. Clow. In the address it was stated that by experiments as well as by clinical observation of cases of hypo- and hyper-thyroidism we know many of the properties of thyroid secretion. We also know that pathological affections of the parathyroids result in conditions such as tetany and paralysis agitans. Further, a definite relationship between gigantism and acromegaly and pathological condition of the pituitary body seems to have been established. The cause of glycosuria is now being more and more looked for in some pathological alteration of the internal secretion of the pancreas. Experiments have proved that the internal secretions of the thyroid, the pancreas, and the suprarenals have an intimate connexion. In the present state of our knowledge treatment is somewhat empirical, but there is one pathological condition of an internal secretory gland in which a certain diagnosis can be made and success in treatment can be promised—namely, myxœdema. In this connexion a case of adiposis dolorosa was mentioned, which the President had had under his care for many years. All kinds of remedies had been tried, and the only one which he had found to be of any use was thyroid extract, gr. 1½, night and morning; but after about

10 to 14 days this results in severe depression, mental irritability, and an uncomfortable feeling about the heart. Passing on now to the commoner condition of hyperfunction of the thyroid gland, Graves's disease naturally occurred to the mind. The following case is of extreme interest. A man, aged 57, had complained of weakness of the legs for several months. He could no longer walk to his work and had lost 3 st. in weight. The pulse was small and the rate 120 to 150. There were no heart murmurs or signs of dilatation. There was no albumin, blood, or sugar in the urine. No exophthalmos was present. There were marked tremors in both hands. There was a large bilateral swelling of the thyroid gland which had been existing for 14 years. On its first appearance, by the advice of his medical attendant, he had painted it with iodine, and this had been followed by some reduction in size. It then transpired that six months prior to consulting the President there were indications of the gland again enlarging, and of his own accord he had resorted to painting with tincture of iodine. The history and symptoms led to a diagnosis of hyperthyroidism, induced by the absorption of iodine in an apparently simple goitre. With cessation of painting, rest in bed, liberal diet, and a course of iron strength and weight were gradually regained. In four months he returned to work, weighing 13½ st., and in all respects quite well. Eight months later he complained of being worried by the consciousness of a missing beat in his pulse. On examination the pulse was 44, feeble, of low tension, and missing a beat at irregular intervals. He remained in bed 14 days without any improvement. The condition was considered to be one of thyroid exhaustion, but in view of his previous hyperthyroidism it was considered best not to attempt stimulation of the gland by iodine or to give thyroid extract. It was decided to try potassium iodide. This was given in 3 gr. doses thrice daily. In ten days his appetite had gone, he was losing weight rapidly, and his pulse was 125. Rest in bed and an iodine-free diet was ordered and improvement again set in. The most interesting feature of this case is the relation of the symptoms of hyperthyroidism to the administration of iodine. The richness of the thyroid in iodine is well known, but its actual rôle is not established. It is impossible altogether to escape from the suspicion that treatment with thyroid preparation may after all only be a mode of treatment with organically combined iodine in an easily assimilable form.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY.—A clinical meeting of this society was held at the West London Hospital on Nov. 5th, Dr. Leonard Dobson, the President, being in the chair. The following cases were shown:—Mr. O. L. Addison: (1) Epithelioma of the Tongue 11 years after operation; (2) Lymphadenoma; and (3) Acute Osteomyelitis of Femur: result.—Major McAdam Eccles: 1. Caput Medusæ; obvious enlargement of the right superficial circumflex iliac vein, right superficial epigastric vein, and left superficial epigastric vein, probably caused by blockage of inferior vena cava. 2. Tuberculous Sinus from disease of left elbow-joint; very distinct improvement under treatment with Simpson light.—Mr. N. Bishop Harman: Congenital Absence of the Iris Sphincters on both sides.—Dr. T. Grainger Stewart: (1) Cerebral Diplegia; (2) Friedreich's Disease; and (3) Progressive Tonic Spasms of Arms and Legs, cerebral origin.—Dr. George Arthur: An unusual Deformity of the Left Shoulder in a female child aged 7 years.—Dr. Sydney Owen: 1. Progressive loss of power and wasting in lower extremities; progressive muscular atrophy commencing in lower extremities. 2. Tubercle bacilli in cerebro-spinal fluid; repeated lumbar puncture (87 times), tuberculin injections (32); arrest of condition. 3. Intracranial Tumour, subtentorial ? metastatic.—Mr. H. S. Souttar: Tabes with gastric crises (female aged 24 years); operation by division of right anterolateral tract of cord between second and third dorsal roots.—Dr. Reginald Morton showed skiagrams of (1) an unusual deformity of the left shoulder (Dr. George Arthur's case); and (2) a large aneurysm of the arch of the aorta (case under the care of Dr. Arthur Saunders).—Dr. Alastair MacGregor gave a short description of the Simpson Light Apparatus and records of some cases treated by this method.—The President, Major McAdam Eccles, Mr. Addison, Dr. Morton, Dr. Stewart, Mr. Souttar, and Mr. W. P. Mallam took part in the discussion on the various cases.

Reviews and Notices of Books.

Principles of General Physiology.

By WILLIAM MADDOCK BAYLISS, M.A., D.Sc., F.R.S., Professor of General Physiology in University College, London. With 259 illustrations. London: Longmans, Green, and Co. 1915. Pp. 850. Price 21*s.* net.

EVERY physiologist and perhaps also members of a larger public will welcome Professor Bayliss's "Principles of General Physiology," which is dedicated to his "Fellow Worker, E. H. S." By general physiology the author understands what Burdon-Sanderson defined as "the study of the endowments of living material," a view practically identical with the "Physiologie Générale" of Claude Bernard, who, however, was not professor in the University of Paris, as stated in the preface, but in the Collège de France, founded by François I. (1530). On the part of the reader an elementary knowledge of physics, chemistry, and biology is assumed. We are glad that a rather full exposition is given of such subjects as catalysis, tension of gases, and some laws of hydrodynamics, with which many medical and other students are apt to be somewhat unfamiliar. The author eschews definitions of vitalism—what is meant by "vital" and by "life" itself. He defines his position when he states that "all we are justified in stating is that, up to the present, no physico-chemical system has been met with having the same properties as those known as vital; in other words, none have as yet been prepared of similar complexity and internal coördination." The author's object is to discuss the physical and chemical processes which intervene in the life processes so far as they are known. Vesalius himself stated that the simplest experiment on the living animal, as a rule, revealed more than a long study on the dead body.

The scope of the work is best presented by enumerating some of the titles of the 24 chapters into which the contents are divided—Protoplasm, Energetics, Colloidal State, Osmotic Pressure, Electrolytes and their Action, Catalysis and Enzymes, Contractile Tissues, Reflex Action, Oxidation and Reduction, Electrical Changes in Tissues, Hormones, Drugs, and Toxins. At the end of each chapter are references to the literature of the subject, and in addition, towards the end of the work a carefully selected and comprehensive bibliography of over 80 pages. There is also an index to the text and another to the illustrations, of which there are 259. At the end of each chapter is added a summary of the chief points dealt with.

As shown in the chapter on Protoplasm, the most striking characteristic of living organisms is the perpetual state of change which they show. In order to effect changes work must be done, and the capacity of doing work is due to the possession of something which is called energy. This leads the author to the two great laws dealing with changes of energy and to the subject of "energetics" in general. Surface tension and surface energy, at various interfaces, and adsorption are treated very fully, and this chapter closes with notes on dyeing and staining as applied to fabrics and a discourse on histological methods. The colloid state and the extension of our knowledge of this state by the use of the ultra-microscope is admirably expounded. Emulsoids, gels, electrolytes, and complex colloidal systems lead the reader on

to Permeability of Membranes and the Properties of the Surface of Cells. The surface membrane of cells seems to be impermeable both to colloids and to the majority of crystalloids. After dealing with narcosis, hæmolysis, and secretion in this relation, the nerve synapse is considered and the conclusion is reached that the cell membrane is a modifiable part of the cell system. The importance of osmotic pressure—seeing that living cells are surrounded by a semi-permeable membrane—is obvious, but there are important differences between animal and vegetable cells in this respect. Perhaps one of the subjects in which the average student of physiology takes far too little interest is that of electrolytes and their actions, and the whole questions of ions. If anxious to learn he will find an admirable exposition of these questions in Chapter VII. Over 50 pages are given to Nutrition. The subject is treated in a broad sense, and deals with vegetable and animal nutrition, not forgetting the nitrogen cycle, root tubercles of Leguminosæ and their micro-organisms, diseases produced by the absence of some specific substance. The newer views of the amino constitution of proteins are discussed, and so is the metabolism of carbohydrates and fats, and the chapter ends with an exposition of Mendelism and Symbiosis. With Catalysis and Enzymes the author finds himself on familiar but important ground. The résumé of the recondite facts is at once comprehensive, sufficient, and masterly. In dealing with Secretion special instances are taken, and the chief attention is given to those points of most general application. Digestion is dealt with in 14 pages. A quick transition leads to Excitation and Inhibition, a most valuable chapter on obscure phenomena in nerve, muscle, and other excitable tissues, including plants. The author writes with first-hand knowledge on inhibition, a most interesting account. The contractile tissues are dealt with shortly but adequately. There is an elegant well-illustrated chapter on the Action of Light. Oxidation and Reduction lead to Respiration, including the chief early investigations of the subject. Oddly enough, Electrical Changes in Tissues is sandwiched between Respiration and Circulation of the Blood. Nearly 30 pages are devoted to Hormones, Drugs, and Toxins, which conclude the text.

The illustrations are a special feature of the book, for in addition to the ordinary figures, such as curves, histological details, and so on, there is introduced a large number of portraits of some of those who have materially contributed to the advancement of physiology, including its ancillary sciences. Most of the portraits are those of investigators who long ago have joined the majority, but there are also a few illustrations of living physiologists, physicists, and chemists, including Sherrington, Arrhenius, Emil Fischer, Ostwald, Pavlov, and others. Amongst historic personalities are portraits of Bernard, with seven of his famous assistants, only two of whom—d'Arsonval and Dastre—still survive.

This work is a most interesting, erudite, and comprehensive treatise on general physiology. Moreover, the style of the author, his literary and artistic tastes are displayed in the text and make many dry facts both palatable and easy of assimilation, while the illustrations, pictorial and histological, add to the charm of an altogether successful account of "The Principles of General Physiology."

Fibrositis.

By LL. JONES LLEWELLYN, M.B. Lond., and A. BASSETT JONES, M.B. Lond. London: William Heinemann. 1915. Pp. 693. Price 25*s.* net.

IT requires some courage on the part of the reader to face a volume of the size of the present work upon a subject which has in the past proved so fruitful in speculation and hypothesis, and on the whole so barren in accurate knowledge. It must be acknowledged that when the plunge has once been made the progress is unexpectedly easy. It is so because the authors are not only definite as to their scheme, but have a literary facility and grace of expression which are often much to seek in medical books. Their scheme involves a considerable amount of repetition, and we find this fault at once while expressing the hope that in future editions they may be able to see their way to compression and excision of some of the redundant matter. That said, we have nothing but praise for the method in which they have set forth their theme and for the thoroughness with which they have attacked the problems under consideration.

"Fibrositis" is the term which the authors have adopted for the group of diseases comprised in the more usual name "chronic rheumatism," and is justified by the observation that the underlying morbid change in the tissues in all the different manifestations of the disease is an inflammatory hyperplasia of the white connective tissue. In their introductory chapter the authors are careful to state exactly what they include in this category; and it may be briefly summarised by stating that they divide the manifestations into the articular the muscular, and the neuralgic varieties; that the undifferentiated forms of infective arthritis are the only types included in the articular group; and that they refer to separate sections the consideration of the morbid conditions which they hold are primarily due to traumatic or static causes.

Next to the general arrangement of their subject-matter in interest is the result of their especial experience in the group of diseases of which they treat. Their observations with regard to the age, occupations, sex, and predisposing causes are full of interest. For example, they believe that the notorious fact that "rheumatic" persons suffer more especially in damp and cold weather is to be attributed rather to alterations in the barometric pressure than to the wet or to exposure. Following the section which deals with the more general aspects of their subject come chapters which take in order articular, muscular, and neuro-fibrositis, the last being almost entirely occupied with the consideration of sciatica and lumbago. Then come several chapters dealing with treatment fully and elaborately, and the last 150 pages of the volume are devoted to traumatic and static fibrositis.

In their treatment of some of the controversial points the authors seem to us to devote undue space to combating hypotheses which have long ceased to find acceptance in the teaching of the medical schools. It has surely, for example, been long recognised that the probable cause of "chronic rheumatism" is bacterial, and the lengthy argument on this point might with advantage have been shortened.

The volume is well printed and illustrated with some good coloured prints and photographs. It is a thorough and searching study of one of the most difficult spheres of clinical medicine.

THE GENERAL COUNCIL OF MEDICAL EDUCATION AND REGISTRATION.

(*Continued from p. 1092.*)

A GOOD deal of business, chiefly in the form of receiving reports from committees, was carried through in the course of the concluding day's proceedings of the 102nd session of the General Medical Council on Nov. 4th. In continuation of the account published last week the main features are appended. Sir DONALD MACALISTER, the President, occupied the chair.

Medical Students and Military Service.

The PRESIDENT announced that he was requested by the Council to inform the licensing bodies of the medical schools and approved teaching institutions that the Director-General of the Army Medical Service has intimated to the Council his entire agreement with the Earl of Derby's decision regarding the recruiting of medical students. The decision was to the effect that it was the duty of medical students, other than those in the fourth and fifth years of study, to join His Majesty's forces. The President expressed the hope that in every medical school steps would be taken to convey this decision to those eligible for military service.

Shortage of Dental Practitioners.

From a report submitted by Mr. TOMES, chairman of the Dental Education and Examination Committee, on the question of the shortage of dental practitioners, it appeared that the committee had been in communication with the various licensing authorities as to any modifications or curtailments of the curriculum which in their opinion might be practicable without lowering the standard of dental practice. A summary of the answers sent by the licensing bodies showed that the University of Liverpool, the University of Durham, the Dental Hospitals of Liverpool and of Newcastle, the Royal College of Surgeons of Edinburgh, Guy's Hospital, and the British Dental Association to some extent questioned there being an actual shortage of qualified practitioners. It was pointed out that the 1879 Register was not quite comparable with the 1915 Register, the former containing many names of persons having small connexion with dentistry, and that many qualified men are not fully employed, the public not being fully convinced of the advantages of going to qualified persons. Attention was called to the report of the London University Commission and to the report of the Departmental Committee on the acceptance by the Board of Education of certificates from unregistered practitioners, and it was urged that the General Medical Council should, at an appropriate time, ask that effect be given to the findings of these two bodies, if necessary after inquiry by a Royal Commission. A curious point was mentioned—viz., that not only did not all the Licentiates register, but that some who had passed all the examinations did not even pay the fee for obtaining the diploma. Attention was also drawn to the lowering of social status which arose from the intrusion of great numbers of unqualified persons, and to the fact that business men who had acquainted themselves with the existing state of things often considered that from a business point of view qualification was worthless or even a hindrance, and so did not put their sons at dental schools. The Incorporated Dental Hospital of Ireland alone considered the possibility that the simpler dental requirements sought by the poorer classes might perhaps be met by a lower grade of practitioner, though this was also suggested in one of several letters sent by private practitioners.

The committee made the following interim report on the subject to the Council:—

1. *Defects in the law as a cause of shortage.*—There is unanimity in attributing mainly to this cause any deficiency in the supply of students, some bodies going so far as to say that it is the sole cause. All express themselves without hesitation on this point.

2. *The influence of the Preliminary Examination.*—There is more diversity in the answers to this question. Nearly half of the bodies consider its effect to be negligible, whilst others, though thinking it of some effect, qualify their answer by deprecating any general lowering of the standard.

3. *The influence of the length and stringency of the curriculum.*—A good many consider this a negligible factor; others, in more guarded answers, hold it to be insignificant as compared with the legal position. Some touch upon the expense of the curriculum in this connexion.

4. *The advisability of modifying the curriculum.*—Although a good many suggestions for alterations in the curriculum are offered, it would be premature to discuss these at present, inasmuch as the Royal College of Surgeons of England, the body which licenses the largest number of dentists, has not completed a very careful inquiry into the matter. The only conclusion which so far comes out clearly is that in the opinion of these bodies, who are in the best position to judge of the matter, no appreciable increase in the numbers of those entering the profession can be looked for whilst the law affords so little protection to the qualified man.

The Council agreed that the questions raised by the interim report should be referred for further consideration to the Dental Education and Examination Committee, with a view to framing definite recommendations for the consideration of the Council.

Dr. MAGENNIS submitted a resolution instructing the Dental Education and Examination Committee to take into consideration the best methods of enabling the public to distinguish between qualified and unqualified practitioners of medicine or of dentistry. He said that all sorts of methods were being adopted to deceive the public. Limited companies were formed and glaring advertisements set up in many cases in order to lure the public into their meshes. The most insidious method, and perhaps the most deceptive, was to show a brass plate with the name of the practitioner and the description "Dental Surgery" instead of "Dental Surgeon." Something ought to be done to prohibit unqualified persons performing operations or administering any anæsthetic.

Sir BERTRAM WINDLE, who seconded, said the evil was a growing one. Misrepresentation was carried to its highest limits by unqualified practitioners. In small country towns he observed such announcements as "Mr. Blank's, Dental Chambers," or "Dental Surgery." How could people in such districts possibly distinguish between the qualified and unqualified men? A large number of persons, some occupying highly respectable positions, even members of their own profession, were having their sons educated by unqualified dentists because the position of such persons was so much more favourable than that of the qualified dentists. This abominable deception of the public, which was doing desperate harm and even leading to loss of life, should be brought to an end.

The resolution was unanimously adopted by the Council.

Apothecaries' Hall Examinations.

At the instance of Sir JOHN MOORE, a resolution was carried authorising the Irish Branch Council to appoint for a period of one year a deputy to be present on behalf of the General Medical Council at the professional examinations held by the Apothecaries' Hall for the purposes set forth in Section 18 of the Medical Act, 1858, the deputy to present a report on the general character of these examinations.

Dr. MAGENNIS, who described the Apothecaries' Hall as the Cinderella of the licensing bodies, desired that the question of appointing a deputy should be postponed for one year, but the proposal fell to the ground for lack of a seconder. Nor did Dr. Magennis find any support for his subsequest suggestion that the deputy should be either an Englishman or a Scotsman. Was it fair, he asked, that a deputy should be appointed from a rival examination body and that the Apothecaries' Hall should be subject to inspection and report by men who were evidently prejudiced?

Sir JOHN MOORE submitted a report from the Examination Committee, concerning the examinations of the Apothecaries' Hall, which contained the following recommendation:—

> That, inasmuch as the Court of Directors of the Apothecaries' Hall of Dublin have expressed their utmost willingness to comply in every respect with the requirements of the General Medical Council in regard to the course of study and the examinations at Apothecaries' Hall, it be referred to the Examination and Education Committees, acting conjointly, to prepare for the Executive Committee a statement of the respects in which the said course of study and the said examinations have been found to be defective or insufficient; and of the suggestions they desire to make for amendment in these respects.

The report and recommendation were approved.

Diploma of Public Health.

A report from the Public Health Committee, presented by Sir JOHN MOORE, embodied statistics relating to the examinations for the Diploma in Public Health held by the various universities and other licensing bodies during the ten years ending with 1914, and recommended that the particulars should be circulated among the licensing bodies with a request for any observations they might see fit to offer thereon.

The report was agreed to.

Indian Medical Service.

A report from the Examination Committee, presented by Sir JOHN MOORE, relating to the examination for the Indian Medical Service since the last session of the Council, showed that there were 12 candidates for 10 vacancies at the examination held in July, 1915, holding original qualifications from various licensing bodies, of whom 7 received commissions. Five were rejected, of whom 3 graduated in India and 1 at a Colonial University. The latter was rejected in Anatomy and Physiology, while of the Indian graduates 1 was rejected in the same subjects, 1 in Surgery, and 1 in Pathology and Bacteriology. The fifth candidate to be rejected also failed, among other subjects, in Anatomy and Physiology, so that 3 out of the 5 failed in those subjects.

The report was agreed to.

Laudanum Preparations.

The PRESIDENT, as chairman of the Pharmacopœia Committee, reported that a communication dated July 22nd, 1915, had been received from the Lord President of the Privy Council calling the attention of the General Medical Council to the following recommendation which was in January, 1915, passed and published by the Council of the Pharmaceutical Society, viz :—

That the policy to be advocated by the Council in regard to the sale of laudanum should be that when "laudanum" is asked for the 1914 preparation should be supplied and the poison-book signed; but where the 1898 preparation is demanded great care should be taken to label it accordingly, and the attention of the purchaser should be called to the fact that it is the 1898 preparation.

It was further stated in the communication that—

In the Lord President's view, the question to be determined is whether the Society is acting properly in assisting the sale of any preparation of opium that does not comply with the requirements of the new edition of the British Pharmacopœia.

The report stated that the committee had reason to think that the form of the recommendation published by the Council of the Pharmaceutical Society gave rise to misapprehensions as to its intention and effect. Having regard to the discussions concerning "laudanum" that took place during the months immediately preceding the publication of the British Pharmacopœia, 1914, the latter part of the recommendation might be taken as conveying to persons who desired to obtain "laudanum" without signing the "poison-book" information which might enable them to effect their purpose. This would appear to be one ground of the remonstrance addressed by His Majesty's Coroner for the City of London and Borough of Southwark to the Lord President. In the opinion of the Pharmacopœia Committee such inferences would have been avoided if an intimation had been addressed to pharmacists by the Council of the Pharmaceutical Society, stating that "When tincture of opium or laudanum is asked for, no preparation other than that described under these names in the British Pharmacopœia, 1914, may be supplied, and the poison-book must be signed by the purchaser. When a tincture of different strength or composition is expressly demanded, the prescriber or applicant must indicate clearly the formula for the special preparation he requires."

In view of the fact that the "1898 preparation" was apparently still in demand, and was publicly sold by pharmacists with a label bearing that designation, the Committee were further of opinion that this preparation should be included in the same part of the Schedule of Poisons as that which now comprehended tincture of opium or laudanum. This result would be attained if the proportion of morphine specified in the part of the schedule in question were reduced from "1 per cent." to "0·75 per cent."

It was recommended that a reply to the foregoing effect be made to the Lord President.

The report was agreed to.

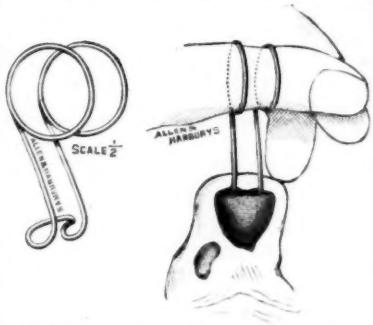
Students' Registration Committee.

A report presented by Dr. NORMAN MOORE from the Students' Registration Committee on exceptional cases and on the approval of certain recognised teaching institutions was approved. The Bootham School, York, George Heriot's School, Edinburgh, and the Technical College, Sunderland, have been added to the list of recognised institutions.

New Inventions.

A NEW NASAL SPECULUM.

IN devising this nasal speculum I have endeavoured to attain two objects: Firstly, to produce an instrument giving the greatest possible view of the interior; and secondly, one that could be drawn into any position without causing discomfort. It will be found that the speculum here figured achieves both objects, and that the triangular-shaped opening is useful for observation or operative purposes. The illustration shows the middle finger pressing between the outer soft part of the nostril and the folded inner rim of the speculum. Two sizes, ¾ and ½ inch, are made and will be found ample for all purposes, and the small cost enables several to be in use or sterilising. The makers are Messrs. Allen and Hanburys, Limited, Wigmore-street, London, W.



Johannesburg. J. L. AYMARD, M.R.C.S., L.R.C.P.

EPSOM COLLEGE FOUNDATION.—The council of Epsom College will shortly award a "John and Bridget Grewcock" pension of £50 a year. Candidates must be legally qualified medical men who have retired from professional work, and who in the opinion of the council are in need of this pension. There is no limitation as to age, but the council will give special consideration to the claims of candidates having association with Worcestershire, Lincolnshire, or Carmarthenshire. Forms of application can be obtained from Mr. J. B. Lamb, the secretary of the College, 37, Soho-square, W.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—An ordinary meeting of the Council was held on Nov. 11th, Sir W. Watson Cheyne, the President, being in the chair. In accordance with a report from the Court of Examiners, it was resolved to grant diplomas of Membership to 103 successful candidates, and Licences in Dental Surgery were granted to five successful candidates. On the recommendation of the Board of Examiners in Dental Surgery it was resolved:—

That the Dental Department of the University of Illinois, Chicago, should be added to the list of dental schools recognised by the College, and that graduates in dental surgery of the University be exempted from the Preliminary Science Examination for the Licence in Dental Surgery.

The President reported that the Bradshaw lecture would be delivered by Sir Anthony Bowlby on Monday, Dec. 20th, at 5 o'clock P.M., and that the subject of the lecture would be "Wounds in War." The President and Mr. D'Arcy Power were appointed delegates of the College to serve on the British Committee which is being formed to coöperate with the Institute of France with the aim of reconstituting the Library of Louvain. A letter was read from the War Office on the subject of medical students and military training, urging that all senior students who have not already done so should become cadets in the medical units of their University's Officers Training Corps. The Council expressed their concurrence with the course suggested.

THE LANCET.

LONDON: SATURDAY, NOVEMBER 20, 1915.

Medical Students and the War.

THERE is no doubt that Lord DERBY'S pronouncement with regard to the duty of medical students at the present time will place many of the young men who have decided during the past three years to embrace the profession of medicine in a very difficult position. The views of those who hold that the adequate supply of medical men should be maintained by retaining students at their medical studies have been put before Lord DERBY in an authoritative and responsible manner, and his answer has been uncompromising. The Director-General of the Army Medical Service has now formally signified to the General Medical Council, through whom the information has been given to all whom it may concern, that he is in agreement with Lord DERBY'S opinion, which, as has been already stated more than once in these columns, is that the first-, second-, and third-year students should accept combatant commissions. The question of distinctive treatment for these young men, admittedly of the very brand required as officers, has been thoroughly threshed out by correspondence in the medical and lay journals, by discussions at the Central Medical War Committee, and by interviews between Lord DERBY and persons of the highest position in matters of medical education. The Central Medical War Committee, in explaining to the Director-General of Recruiting the manner in which local war committees had been working, achieved gratifying recognition as the agency for organising the medical profession with regard to military services, and they have represented to Lord DERBY that in two ways the activities of which he is the official head have come into relation with their work. First, medical practitioners have been approached to take combatant commissions. This was done in error, and all practitioners who have received the recruiting appeal directed to unstarred men can fall back upon the War Emergency Committee of the locality, or, if in their neighbourhood no such body exists, can bring the matter to the notice of the Central Medical War Committee. Secondly, the question of the enlistment of students comes within the sphere of the Central Medical War Committee, and the problem of dealing with the junior student was felt to be one upon which guidance was required. Lord DERBY has signified to the Committee, as he had previously done elsewhere, that his opinion is unalterable. The junior students, he holds, should join the army in a combatant capacity.

Yet another repetition of this opinion was given by Lord DERBY in response to a joint deputation of representatives from the Royal College of Physicians of London, the Royal College of Surgeons of England, the University of London, and the deans of the London schools of medicine. Lord DERBY took up the broad position that the need of the country for a fully officered army in all its branches must take precedence of any need, however soundly anticipated, that the country may later feel through the shortage of medical men. It seems to us in face of the anxious attention which the plight of our junior medical students has aroused, and the repeated decision of the authorities upon the matter, that further debate upon it is unlikely to be fruitful, but we publish in another column a letter from Professor A. E. SHIPLEY, the Master of Christ's College, Cambridge, which puts out the arguments for retaining medical students at their studies until they are definitely useful at their professional subjects. Those arguments are admittedly strong. The medical student is a peculiar person; engaged upon studies which when complete will make of him a particularly valuable citizen, he cannot be withdrawn from those studies without sacrificing much more time than he appears to be surrendering. If he is stopped suddenly while engaged in the preliminary courses of the curriculum he must inevitably lose not only the period for which he is at the war, but much of the period, antecedent to the war, which he has already employed in medical work; for scientific education even in its elementary stages cannot be dropped for an indefinite time without entailing the necessity of complete recommencement. Again, the shortage of medical men, undoubtedly implied in what will largely amount to the withdrawal from pupillage of the junior medical students of our schools, may be a more serious matter at this juncture than any falling off in the supply of students in normal times. The war must have its effect upon the population of the country. There will be returned to us a great many men who in one form or another will require medical or surgical help, while the value of young life will be so high that the care of the infant, of the expectant mother, and, we might add, of children at the school age will have a particular value. By as much as the system of medical inspection of the State school children suffers now by the temporary loss of medical officers, by so much will greater effort be required in this direction in the near future. The medical man, into whom the student of to-day would have shortly been transformed, will be sadly wanted.

If we accept Lord DERBY'S broad view of the situation, we trust that it may yet be possible to use medical students who have put their earlier classes and examinations behind them in some semi-medical capacity with the army. These students, who are generally called third-year students but who often enjoy greater seniority, might well be made into surgeon-probationers,

when their services would be of direct use in the Royal Army Medical Corps, and what they saw while on service would help them in their future professional studies The enlistment of students by a careful group system might accomplish something useful. Under Lord DERBY'S scheme of enlistment by groups the young man who is called up receives a fortnight's notice, and this can be extended for reasons given. Can it be accepted by the authorities as a valid reason for the delay of a student to join the army as a combatant officer that a medical examination is impending? In many cases the passing of such an examination would render the student a useful adherent to the Royal Army Medical Corps, at any rate in some subordinate capacity, so that the slight delay would act in a doubly effective manner. For almost immediately the student would become useful to the country in the present crisis, and he would be in a far more favourable position to obtain his qualifications the moment peace conditions re-existed, and then his assistance will be highly valuable to the country.

Laudanum.

SOON after the last session of the Executive Committee of the General Medical Council we had occasion to refer to the communications from His Majesty's Coroner for the City of London and Borough of Southwark to the Lord President of the Privy Council connected with the sale of laudanum. It will be remembered that owing to an increase in the strength of tincture of opium in the British Pharmacopœia this article automatically became included in that part of the Schedule of Poisons in which the sale is safeguarded by all possible restrictions. It had been urged that these restrictions in the case of laudanum were vexatious and unnecessary, that this article was frequently sold in small quantities for domestic purposes; and it was also said that there were many regular customers who habitually purchased larger amounts who would resent any interference with their liberty of action, and who, further, might be in some danger if supplied with tincture of opium of the new strength without due warning. The Council of the Pharmaceutical Society endeavoured to afford guidance to dispensing chemists by recommending that "when laudanum is asked for the 1914 preparation should be supplied and the poison-book signed, but where the 1898 preparation is demanded great care should be taken to label it accordingly, and the attention of the purchaser should be called to the fact that it is the 1898 preparation." The matter was referred by the Privy Council to the General Medical Council, and it has been under the consideration of the Pharmacopœia Committee. The Council adopted the report of the Pharmacopœia Committee, taking it as the basis of a reply to the Lord President of the Privy Council, who wished to know "whether the society is acting properly in assisting the sale of any preparation of opium that does not comply with the requirements of the new edition of the British Pharmacopœia."[1]

No one can complain of the judicious tone of the report of the Pharmacopœia Committee. It is suggested that the form of the recommendation published by the Pharmaceutical Society has given rise to misapprehension, and that the latter part of the recommendation might be taken as conveying to persons who desired to obtain "laudanum" without signing the "poison-book" information which could help them to effect their purpose. The sting of this suggestion is removed on remembering that it is regarded as a misapprehension as to intention and effect. The Pharmacopœia Committee does not say that the recommendation of the Pharmaceutical Society is intended to assist the sale of two distinct preparations called laudanum, but only that it has been worded so as to be open to this inference. It is quite instructive to note the manner in which the question has been dealt with in the alternative form of recommendation drafted by the Pharmacopœia Committee. By comparing the two it will be seen that the Pharmaceutical Society was firstly concerned with instructing the vendor how he should act when the laudanum of 1898 was demanded, and his actions so far as the recommendation is concerned are actions taken to safeguard his own position in the eye of the law rather than to protect the purchaser. The Pharmacopœia Committee has approached the subject from a different point of view, and while not ignoring the duties of the dispenser, it concerns itself mainly with the responsibilities of the purchaser. The two sets of recommendations should be carefully compared to realise with what little variance in verbiage a totally different complexion is put upon the sale of laudanum. The recommendation of the Pharmacopœia Committee runs as follows:—

> When tincture of opium or laudanum is asked for, no preparation other than that described under these names in the British Pharmacopœia, 1914, may be supplied, and the poison-book must be signed by the purchaser. When a tincture of different strength or composition is expressly demanded, the prescriber or applicant must indicate clearly the formula for the special preparation he requires.

This wording, while it in no way hampers the sale of an article demanded, throws all responsibility upon the purchaser, who must be quite clear about his requirements without any assistance or explanation on the part of the vendor. There can be no suggestion that the laudanum of 1898 has been substituted for the laudanum of the British Pharmacopœia, or that the explanation afforded by the dispenser as to the difference in strength might have been accompanied by any hint that the former is safer on account of its smaller proportion of morphine or easier to purchase since the poison-book need not be signed at the completion of the transaction. Such inferences might, no doubt erroneously, have been drawn from the wording of the recommendation of the Pharmaceutical Society.

[1] See report of the Proceedings of the General Medical Council, p. 1147.

The adoption of the course recommended by the Pharmacopœia Committee will probably be sufficient to lead speedily to a diminution in the consumption of laudanum even without the imposition of any further restrictions. The same committee, however, is of opinion that it is desirable that the sale of the 1898 preparation of laudanum should be checked, so far as possible, by its inclusion in the same part of the Schedule of Poisons as that which now comprehends tincture of opium or laudanum. It is indicated that this result could be attained if the proportion of morphine specified in the part of the schedule in question were reduced from "1 per cent." to "0·75 per cent." It is commonly recognised, however, that it requires much effort and great patience to secure any alteration in the Schedule of Poisons, and we fear that it may be long before such a simple change can be effected, though all medical men may be convinced that it is desirable.

Annotations.

"Ne quid nimis."

EVOLUTIONARY ETIOLOGICAL FACTORS IN DISEASE.

IN THE LANCET of June 26th we published a study of the Etiological Factor in So-called Cerebro-spinal Fever, by Dr. R. Donaldson, pathologist to the Royal Berks Hospital, in which he advanced the view that the causal organism of an epidemic of cerebro-spinal fever in Reading, numbering about 70 cases, was a diphtheroid rod closely related to the Klebs-Löffler bacillus, but extremely pleomorphous and sometimes giving rise to Hoffmann-like forms, sometimes to what appear to be meningococci, and so forth. Dr. Donaldson quoted Sir William Osler's suggestion that we are witnessing the struggle of a new disease to win a place among the great epidemics of the world. The publication of this paper gave rise to a discussion in our correspondence columns. Dr. J. T. C. Nash, medical officer of health for Norfolk, who has for years past attacked the doctrine of absolute specificity in the matter of infectious diseases, considered that Dr. Donaldson's study supported his idea of a relation between so-called cerebro-spinal fever on the one hand and diphtheritic and scarlatinal infections on the other, evolving by way of some anomalous form of sore-throat; and he described in this connexion a peculiar form of infectious disease widely prevalent in Norfolk last autumn and winter, characterised by a moderate sore-throat and occasionally by a slight and evanescent rash. The most frequent organism present in swabbings from the throat was a Gram-negative diplococcus, which Professor R. T. Hewlett reported might be M. catarrhalis. When later on cases of cerebro-spinal fever began to crop up, Dr. Nash's attention was called to the possibility of a causal sequence. Commenting on these views, Dr. John Biernacki considered it inexpedient in the present stage of preventive measures to utilise merely suggestive considerations against the thesis that certain infectious diseases are individual in origin, and held that there is a group of diseases which have become clearly individualised in the mind of clinicians, epidemiologists, and in some instances bacteriologists, caused by germs which never become converted one into another. He specified cerebro-spinal fever as one of these. In an interesting letter in reply to this Dr. Nash considers that his views and those of Dr. Biernacki have much in common, the main point of issue being the question of introducing "a disturbing current of theory" into the present-day trend of practical prophylaxis as based on case-to-case and carrier-to-case transmission of infectious diseases. We regard the point as an important one, and the subject as one of absorbing interest at the present time. A note on the pleomorphism of meningococcus was recently published in our columns,[1] and so great a clinician and epidemiologist as Sahli, of Berne, assumed that the meningococcus was a virulent form of M. catarrhalis to explain the incidence of the disease. We suggest, however, that the time is not yet ripe for basing any definite theory on the facts as at present known, and that the important matter is further research combining both clinical and bacteriological investigations on the obscure but fascinating etiological factors in disease.

PROJECTILE WOUNDS OF THE HEAD.

Dr. Lloyd Mills, of Los Angeles, recounts in the *Journal of the American Medical Association* of Oct. 23rd his experiences of wounds of the head in Vienna, where after assisting in the Fuchs clinic he was given charge of two wards and treated 300 cases of his own, assisting with a further 800 in the Büdinger clinic. In the first month of war comparatively few head injuries were received, because the fighting was in the open, but with entrenchment operations on a large scale the number rose rapidly, until short-range head wounds became the most frequent injury. The frequency in hospital lists was masked by the fact that fully 95 per cent. of these injuries were immediately fatal, because of the literal ruin which the modern sharp-nosed bullet made of the cranium and its contents. Some idea of the terrific impact might be gained by remembering that the 10 grm. German bullet had a muzzle velocity of about 2900 feet per second, and therefore possessed at 100 yards energy sufficient to raise over three-quarters of a ton to the height of one foot. Besides this forward momentum, the bullet as it left the muzzle was revolving on its long axis about 2500 times a second, and this rotary boring motion was by far the most pathologic motion of the bullet on striking bone. Sir Victor Horsley has called attention to this point in his address on Gunshot Wounds of the Head, delivered before the Medical Society of London.[2] Reconstruction of skulls shattered by this momentum showed that the undeformed bullet passed completely through the skull and emerged before the collapse of the cranium occurred. The collapse was not due to any supposed explosive action of the bullet, as radial and circular fissures might be seen arising from the wound of entrance as well as that of exit, and the fragments of bone so produced were dissipated far and wide through transmission of the energy of the bullet to the brain substance, which spread and stormed out through every fissure. The comparative frequency of fracture of the orbital plate,

[1] The Pleomorphism of the Meningococcus, by Lieutenant A. Lundie, R.A.M.C., Lieutenant D. J. Thomas, R.A.M.C., and Lieutenant S. Fleming, R.A.M.C., THE LANCET, Sept. 25th, 1915, p. 693. See also Specific Differences amongst Bacteria, by Dr. K. W. Millican, THE LANCET, Dec. 13th, 1913, p. 1731.

[2] THE LANCET, Feb. 20th, 1915, p. 359.

long supposed due to "contrecoup," was now known to be part of the system of radial fissures. Every known variety of eye injury occurring in civil life had its duplicate in battle injuries, but the most frequent types of bullet wound were two, namely, that in which the antero-external wall of the orbit was cleanly shot away, exposing the orbital structures nearly as in Krönlein's operation, and a perforation of the orbital cone without touching the globe when the latter was either shattered by indirect violence or suffered some serious internal derangement. In shrapnel or other shell wounds of the eye over 85 per cent. resulted in panophthalmitis requiring prompt enucleation, and the results following the removal of fragments were much more unsatisfactory than in the case of similar metallic fragments in civil life. All the cases observed of war psychosis associated with hysterical amaurosis were the result of the unexpected bursting of a shell in the immediate neighbourhood. Permanent bilateral blindness, the most terrible of battle wounds, was chiefly due to the penetrating power of the modern pointed bullet, which even at 1500 yards and over often destroyed both bulbs or severed both optic tracts or retrobulbar vessels without inflicting other fatal injuries. Dr. Mills considers that the frequency of this terrible injury should alone lead to the abandonment of the spitzer bullet, or at least to its modification.

THE TREATMENT OF BLACKWATER FEVER.

IT is obvious that the treatment of a disease the etiology of which is still undetermined will be attended with logical difficulties. An example of this is to be found in blackwater fever, respecting which many and diverse theories have been advanced in explanation of its probable causation. The treatment of this grave malady must necessarily depend to a large extent upon the views which the practitioner holds regarding its origin. In another column we publish an interesting report by Mr. R. W. Burkitt, of the East African Medical Staff, on a method by which he has been successful in treating some serious cases of blackwater fever by the administration of potassium and sodium bicarbonate and chloride of calcium. These remedies he regards as "blood alkalinisers" and his view appears to be that the symptoms in blackwater fever are in all probability due to a lessened alkalinity of the blood, this being a "by-product" of the condition preceding hæmoglobinuria, and that this "by-product" when it reaches a certain point causes a breaking-down of the blood elements. This acid poisoning (a greatly lessened alkalinity of the blood) shows itself by the presence of acetone and aceto-acetic acid in the urine. Mr. Burkitt's careful observations seem to be in accord with those of some other authorities. Major A. C. MacGilchrist, I.M.S., for instance, stated in 1912 that his own studies in connexion with the hæmology of quinine and its salts had suggested to his mind the existence of a diminished alkalinity of the blood in blackwater fever, and that if the examination of the blood and urine of such a patient proved the existence of "acidæmia" the prophylaxis and treatment would be simplified. He also expressed the opinion that the action of quinine, like that of the salicylates, should be guarded against by the administration of alkalies in all cases where an attack of blackwater fever was feared. The number of cases reported by Mr. Burkitt is perhaps too small to enable us to base upon them any definite or final conclusions as yet, but they indicate that the administration of alkalies, in the circumstances which he mentions, has been attended with very beneficial results. The method is therefore well worthy of a trial by those who are called upon to treat this very grave disorder of the tropics.

BELGIAN NEEDS AT CAMBRIDGE.

DURING the academic year 1914–15 a small Belgian University was established in Cambridge, and the Master of Christ's College wishes to call attention to its present needs. Some 30 professors and their families were cared for and six faculties were organised, which gave instruction to about 130 students. Such of the latter as are of military age have since returned to fight for their country. Those who are ineligible are now making munitions, but many of the professors and their families are still in Cambridge. In all, there are now in the town and county just under 600 Belgian refugees, including a few discharged wounded soldiers with their families, all of whom require clothing. Cambridge itself is neither large nor wealthy, and the county is one of the poorest counties in England. During the last 12 months considerable quantities of clothes have been collected and distributed. In this way America and New Zealand, amongst many other lands, have notably contributed, but the resources now are almost at an end, and as regards men's clothes, completely so. Warm clothes of every description for men, women, and children, as well as boots and shoes, are urgently needed. Everything received is put to good use, and during the last six months clothes unsuitable for refugees in Cambridge have been despatched to the following centres: The Serbian Relief Fund and another society for the help of the Serbians, the French Wounded Emergency Fund, the Belgian Soldiers' Fund, the Italian Alpine troops, and the Hôpital Belge at Chartreuse-de-Neuville in the department of Pas-de-Calais. Any parcels or cases of clothes will be gratefully acknowledged, and should be addressed to Mrs. Tanner, The Stone House, Cambridge, with a clear indication as to their origin.

HERALDRY AND MEDICINE.

To the penultimate number of our contemporary the *Antiquary*, which after more than half a century of honourable existence has succumbed to the war demon, Dr. S. D. Clippingdale contributes the first moiety of a paper on Heraldry and Medicine, which he believes himself to be a new subject. Probably the first medical man in this country to receive a grant of arms was John Leche, surgeon to Edward III., in whose blazon appeared an arm erect proper grasping a leech or snake environed round the arm vert. Corporate medicine did not fall under the cognizance of the heralds until the year 1451, when arms were granted to the Guild of Surgeons, followed about a century later by a grant to the Royal College of Physicians of London. The surgical arms show three fleams argent, a fleam being the instrument used for cupping and bleeding purposes. The medical arms appropriately contain a hand proper feeling the pulse of an arm proper issuing from the sinister side of the shield, with a pomegranate to represent therapy. The Physicians of Ireland have a similar coat-of-arms without the fruit. In all the arms we have mentioned so far the field is sable, possibly allusive to the fact that a doctor is frequently brought into contact with

the phenomena of death. The traditional bearings most frequently met with are two in number—namely, the staff of Æsculapius and the wand of Mercury. The former is a wooden staff, whose roughness is supposed to be typical of the doctor's life, entwined by the serpent who imbued the physician with wisdom. The staff of Æsculapius has been borne by many medical men, including Lord Lister, and appears in the arms of St. George's Hospital and the badge of the Royal Army Medical Corps. The caduceus, or wand of Mercury, is a rod of white metal, probably quicksilver, entwined by two serpents. It appears for the first time in English medical heraldry in the crest of Sir William Butts, physician to Henry VIII., and since in that of many other medical celebrities, not, however, being confined to medicine, as it occurs in the borough arms of Rotherham. Dr. Clippingdale possesses a wealth of antiquarian knowledge, and the article, which is illustrated by woodcuts, abounds in interesting detail.

SHORTAGE OF DRUGS AND DOCTORS IN RUSSIA.

THE Ekaterinburg local government has been considering its local budget in connexion with the high price of certain medicines. Aspirin, which before the war cost 2 roubles 94 copecks per kilogramme, is now sold at 80 roubles, while the price of salicylate of soda, phenacetin, pyramidon, and salicylic acid has risen in similar proportion and continues to rise without intermission. Instead, therefore, of an expenditure of 66,000 roubles on drugs as in 1914, this year 140,000 roubles would be required. The possibility was discussed of reducing the expenditure on dear foreign drugs or replacing them by cheaper substitutes. It was decided to exclude a series of 32 from the current medicines on the list, substituting a cheaper product for some of them. The *Uralsk Zhisn*, in reporting these things, observes that if the Government cannot facilitate the supply of drugs for the country communities a state of very serious difficulty must occur. In view of the shortage of doctors the Pirogoff Association is calling an All Russian Congress of medical men to discuss points connected with the war. One of the most important of these is the organisation of medical courses and the extension of the rights of women doctors. It is proposed to substitute women for men in all the local hospitals so as to set free the men doctors for positions on the sanitary trains.

OLD MEDICAL LIBRARIES.

THE annual report of the Library Committee of the Royal College of Physicians of Ireland is this year particularly interesting, for it contains a history of their collections. These are in part more than 200 years old, having had for nucleus the library which Sir Patrick Dun left to the College at his decease in 1713. It is now 50 years since the library of the Physicians has occupied its present quarters in the College in Kildare-street, Dublin, a region of noble galleries and collections. It therefore celebrates its jubilee, and, considering its beginnings, may be congratulated on its size—nearly 13,000 volumes—and its continued usefulness, which the war has scarcely impaired. The vicissitudes of some of the ancient medical libraries are not unlike those of the small nationalities. Little private collections of choice works, like the lesser nations, have often a hard struggle for existence. They are apt to be dispersed, cruelly dismembered, or incorporated in larger libraries, and their final emergence in the twentieth century may be regarded as a proof of the survival of the fittest. At one time, in 1756, Sir Patrick Dun's books, which had at first remained in his house "on the Inns" had practically disappeared from public use. They were in the possession of the college librarian, Dr. Quin, and were kept by him "in a chest of lumber." "No security had ever been given or asked 'for the forthcoming of the books.'" Many must have disappeared, for they were spoken of by Dr. Relhan before a House of Lords Committee in 1756 as "the remains of the books of Dun's library." They numbered some 300 volumes. They were rescued for the benefit of Irish physicians by Act of Parliament (25 Geo. III., cap. 42), and became the nucleus of the present flourishing collection. Doubtless the original 300 volumes were valuable and curious, though we understand that, like John Hunter's books in the library of the Royal College of Surgeons of England, they have not been traced. The original collections of the English corporation of Surgeons, now the College, are an instance of non-survival. After some negotiations between the Barbers and the Surgeons in 1747–50, they were sold in the latter year to a "Mr. Whiston, the bookseller," for the sum of £13, and, as Mr. D'Arcy Power has pointed out, have never been identified. The Surgeons had claimed them as their own by right, but the Barbers had retained them and had offered to sell them to the Surgeons for £25, together with a skeleton! Whiston had valued them at £20, but paid far less. Thus disappeared what would now be considered a unique old collection. It would be interesting to reconstruct the original collections of Dun and of the corporation. This could be done tentatively with the help of such old standard works as De Bure's "Bibliographie Instructive" published in 1764. De Bure gives full details of some 105 works, representing about 150 volumes, on medicine, surgery, pharmacy, chemistry, and alchemy, published before 1713. These, as well-known works which no physician's library should be without, were doubtless mostly included in the two collections above discussed, for small specialised groups of books such as these have always much in common.

THE RELATION OF SYPHILIS TO OBSTETRICS AND GYNÆCOLOGY.

WE have been asked by the Section of Obstetrics and Gynæcology of the Royal Society of Medicine to call attention to a letter from the American Gynæcological Society (Secretary: Mr. Le Roy Broun, 148, West 77th Street, New York City) stating that the council of that society has chosen as the official subject for discussion at the annual meeting in Washington, May, 1916, "The Relations of Syphilis to Obstetrics and Gynecology." Dr. George Gellhorn has been delegated to arrange for the details of a symposium, and he considers that his work will be materially aided if any British observers will let him know at once whether they contemplate taking up any phase of the subject. Dr. Gellhorn will appreciate information from anyone who is doing scientific work on the study of syphilis in its immediate or distant bearing upon gynæcological or obstetrical practice. He can be communicated with direct at 713, Metropolitan Building, St. Louis, Missouri.

TREATMENT OF ABSCESS OF THE LUNG BY ARTIFICIAL PNEUMOTHORAX.

THE treatment of pulmonary tuberculosis by induction of pneumothorax has rapidly come into vogue in the last few years. The operation seems on theoretical grounds to be as applicable to many other forms of chest disease, but it has very seldom been used. However, in 1910 Forlanini, to whom the introduction of this treatment of tuberculosis is principally due, published a case in which he cured a pulmonary abscess by inducing pneumothorax. In the *Gazette Médicale de Paris* of Sept. 22nd Professor E. Leuret and Dr. Aubert have recorded another case. The patient, a girl aged 15 years, contracted pharyngeal diphtheria in December, 1911. The symptoms disappeared in a short time, but about the tenth day there was relapse, which was complicated by broncho-pneumonia. Convalescence took two months, and during its progress hæmoptysis occurred. Diphtheritic paralysis followed but yielded to injections of antitoxin. The temperature became normal, but the expectoration increased, and in May, 1912, a new focus of broncho-pneumonia was found in the right lung in the position in which the pulmonary disease began. After a few days of fever the temperature became normal, but the expectoration persisted and was tinged with blood. Attacks of hæmoptysis began in August, 1912, but occurred at fairly long intervals and did not endanger life. In January, 1913, there were signs posteriorly of a cavity at the middle of the right lung in the position of the interlobar fissure. These signs disappeared, but the expectoration did not change. In June an area of dullness and diminished respiration was found a little below the level of the xiphoid cartilage, with moist râles over a space of a 5-franc piece. In September these conditions persisted, and radioscopy revealed dark spots, lines of peribronchitis running towards the hilum, and enlarged tracheo-bronchial glands. On the left side peribronchitis and enlarged glands were also shown. A fact of importance when the induction of pneumothorax was decided on was that the base of the lung for a breadth of four fingers was sound and the diaphragm moved normally. There were therefore no pleural adhesions in this position. Examination of the sputum for the tubercle bacillus proved negative. All the usual methods of treatment had been used without effect and the prognosis seemed bad. Towards the end of December the hæmoptyses were so abundant as to threaten life. In four days 2 litres of blood were lost. All hæmostatic remedies failed, and the purulent expectoration, which resembled mashed spleen, amounted to 100 grammes daily. On Jan. 14th, 1914, the first injection of air was given without difficulty, and the operation was repeated every six days. The quantity injected varied from 250 to 500 c.c. and positive intrapleural pressures varying between 6 and 11 were induced. After the third injection radioscopy showed the lung retracted towards the spine and the interlobar fissure adherent to the posterior thoracic wall. The pneumothorax extended throughout the whole side of the chest from apex to base. The first result was disappearance of blood from the expectoration, which became frankly purulent and greenish. Only on two occasions, at the onset of menstruation, was it slightly rosy. The amount of the expectoration diminished. From Feb. 25th to March 12th and from April 3rd to 12th there were relapses due to attacks of influenzal bronchitis, which affected the left lung. At the time of the report the expectoration was reduced to from 1 to 2 grammes daily of mucus scarcely streaked with pus and the patient could be considered cured. The high intrapleural pressures necessary for drying up the abscess are noteworthy, but they were well supported. Professor Leuret and Dr. Aubert point out the advantages of this method not only over medical treatment but over the operations usually performed for pulmonary abscess, which are difficult of execution and involve the administration of a general anæsthetic—a dangerous procedure in cases of pulmonary disease. However, the induction of pneumothorax may be rendered impossible by adhesions.

THE METROPOLITAN WATER-SUPPLY.

THE results of the chemical and bacteriological examination of the London waters for the month of July are of interest, since it was a wet period, the rainfall being 4·10 inches, which is 1·53 inches above the average. All three raw waters (Thames, Lee, and New River) improved in quality as judged by the albuminoid nitrogen and turbidity tests, but deteriorated according to the permanganate test. The Thames and Lee waters were not so good according to the colour test, while the New River water showed an improvement. The filtered waters either improved or showed no change as judged by the usual tests, except New River (albuminoid nitrogen and permanganate), Kempton Park (albuminoid nitrogen), and Grand Junction—Kew (colour). Compared with the 1914 averages, the raw waters yielded results better than their respective averages as judged by the permanganate test (New River excepted), turbidity and colour tests, and worse than their respective averages as judged by the albuminoid nitrogen test. The filtered waters yielded results better than their respective averages as judged by the albuminoid nitrogen test (New River and Grand Junction excepted) and by the permanganate and colour tests (East London—Lee, Kempton Park, Chelsea, Grand Junction—Hampton and Kew excepted). As to bacteriological results, the raw Thames contained more and the raw Lee and New River waters fewer bacteria than their respective averages for the year 1914. The filtered waters gave, generally speaking, unobjectionable results.

THE discussion on Paratyphoid at the Royal Society of Medicine will be continued on Tuesday next, Nov. 23rd, when Sir William Osler is expected to reopen the discussion.

THE King has given authority to Sir StClair Thomson to wear the decoration of Commander of the Order of Leopold. Authority has also been given to Major H. Stedman (late R.A.M.C. (T.F.)) in respect of the decoration of the Chevalier of the same Order. Both decorations have been conferred by the King of the Belgians in recognition of valuable services rendered by them.

WE regret to announce the death of Dr. Robert Maguire, which occurred on Nov. 12th, at the age of 58. He was senior physician to the Hospital for Consumption, Brompton, honorary physician to the Royal College of Musicians, and had been assistant physician at St. Mary's Hospital, and lecturer on pathology, Owens College, Manchester.

SPECIAL HOSPITALS FOR OFFICERS.

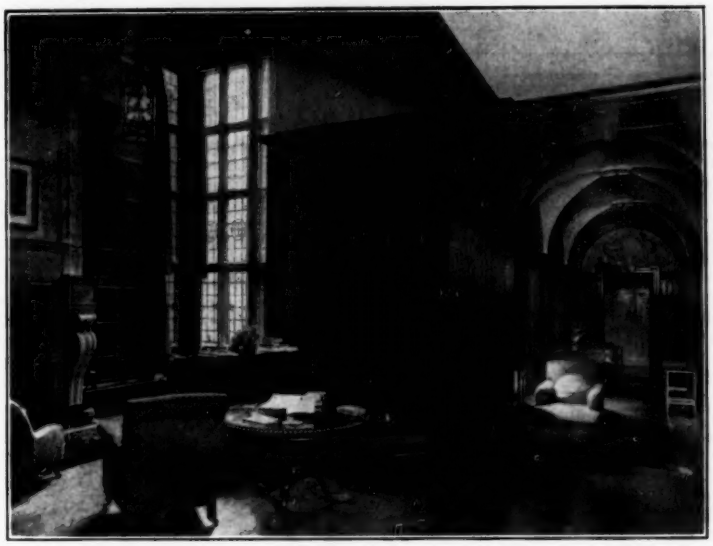
LORD KNUTSFORD'S APPEAL.

AN appeal which owed its initiative to Viscount Knutsford, P.C., resulted in an organised scheme for the observation and treatment of officers who had been rendered incapable of service by the stress of warfare and the horrors of the trenches rather than by actual wounds from shot and shell. The scheme was to provide the same facilities for recovery as in the case of surgical wounds and injuries, with the special kinds of skilled attention and treatment which such cases require, and so to avoid the necessity of sending them to any existing institution.

With the rough classification possible at a base hospital there was naturally a large variety in the cases sent back from the various seats of war, and it was soon decided to include in the scheme cases of organic disease of the nervous system, whether arising or not from wounds and injuries, as well as cases of definite mental disorder, but to classify them as soon as possible so that each might be brought at once into an environment best suited to recovery. Hence what was at first one hospital gradually developed into four, with separate and distinct functions.

Hospital I., which was the first to be started in January of the present year, was to be devoted to the cases broadly described as fatigue of the central nervous system; Hospital II., opened in April, to be used as a convalescent home for Hospital I., where the stay could be prolonged to complete recovery; Hospital III., started in July, for the cases with organic lesions; and Hospital IV., which is yet in its infancy, for definite cases of mental disorder. The honorary staff attached to these three hospitals is as follows: Dr. F. E. Batten, Dr. J. Milne Bramwell, Dr. A. G. Buchanan, Dr. E. Farquhar Buzzard, Dr. R. H. Cole, Dr. James Collier, Dr. Maurice Craig, Dr. Leonard G. Guthrie, Dr. Bernard Hart, Dr. Henry Head, Dr. T. B. Hyslop, Professor W. McDougal, Dr. H. Crichton Miller, Dr. J. Heatly Spencer, Dr. Purves Stewart, Dr. W. Aldren Turner, Dr. S. A. Kinnier Wilson, Dr. Hugh Wingfield, Dr. Maurice B. Wright, with Dr. James Chambers and Dr. R. Percy Smith, in addition to Dr. Craig and Dr. Hyslop mentioned above, attached specially to Hospital IV. The first three hospitals will now be considered seriatim and the fourth left over for a later report.

FIG. 1.



Interior of Hospital I. at Palace Green.

Hospital I. at Palace Green.

Hospital I. is at Amesbury House, 10, Palace Green, Kensington. The house looks out on to the Palace Gardens across a quiet roadway, where the din of traffic and motor-horn is almost inaudible. The spacious reception-rooms give the feeling of a well-ordered private house and in no wise that of an institution, as a picture showing one of the rooms indicates. (Fig. 1.) There are 33 bedrooms, each with one bed—"austere little rooms," as the medical officer called them—with plain grey walls and no pictures or ornaments, nothing to attract or distract the attention of the tired men, to whom complete and absolute rest of body and mind is the first essential of recovery. In such a quiet haven fatigue as a rule rapidly passes off and convalescence begins. But slow and sure is the maxim, and in the usual routine the patient stays in his room for the greater part of his sojourn—three weeks and a half on the average—takes all his meals alone, with the exception, perhaps, of afternoon tea, and with a short daily walk in the park towards the end of his stay, the whole forming what might, for want of a better name, be called a modified Weir-Mitchell course. The patients treated at Hospital I. are largely cases of simple mental fatigue, the genesis of which has often been proximity to a shell explosion after a prolonged period of stress accompanied by insomnia. The fatigue always reduces the power of concentrating attention, and may inhibit it altogether; loss of memory may be and often is present. In so far as the condition is due to stress acting on a normal healthy nervous system, this is generally the limit of the disorder occasioned, but where hereditary tendency or previous mental instability existed hysteria in all its forms may occur, especially the paramnesia which results in romancing and the seeing and relating of visions. Apart from any hereditary tendency prognosis is good, and in the slighter cases three or four days of quiet rest in bed works wonders. Of accessory methods of treatment suggestion appears to be the most useful, especially in the form of the relief of depression by explaining to the patient the mechanism of his retarded mental processes. Such explanation may take long and require much patience, but the resulting mental relief more than compensates for the trouble taken. Massage and electricity are not much employed in Hospital I.; a great Wimshurst machine forms a handsome ornament downstairs, but is little in request. Necessary dental work is done in the house in order that all the conditions for adequate nutrition shall be operative. The visiting staff is chosen from the list of names which has already been given: Dr. Stanley Bousfield is registrar and Lieutenant J. C. Woods, R.A.M.C., medical officer to this and Hospital II.

Hospital II. at Moray House.

Hospital II. occupies Moray House, Campden-hill, and is delightfully situated in its own grounds (Fig. 2.), as quiet and secluded a haven as could be found anywhere in the Home counties. Moray House is employed as the convalescent

FIG. 2.

The Grounds of Moray House, Hospital II.

home of Hospital I.; there are 30 separate bedrooms in which the note of austerity is no longer present, the reception-rooms are used for meals and recreations, and the reviving brain can refresh itself with the sight of beautiful pictures hung in beautiful rooms. Within the house, billiards, and without the house croquet are allowed; and we were privileged to witness a lesson in sleight-of-hand being given to one of the convalescents by the originator of the scheme. More active treatment to improve nutritional processes is now given, and two masseurs are occupied daily in the house with the use of mild faradism to assist. The stay is longer in Hospital II., six weeks on the average, and stress is here laid on the necessity of sufficient time if recovery is to be rapid and complete. At this stage an ability to walk often lags behind the other evidences of recovery and may be a source of great anxiety to the patient, although curable with time and care. The advantage of a special convalescent home for such cases is evident, as the association with other men in a like condition, also unfit although without visible wound, is likely to encourage the sufferer who is apt to feel his apparent soundness a slur in the presence of splints and slings. The complete absence of physical signs of organic disease is a noteworthy feature in these cases and one which authorises the giving of a good prognosis.

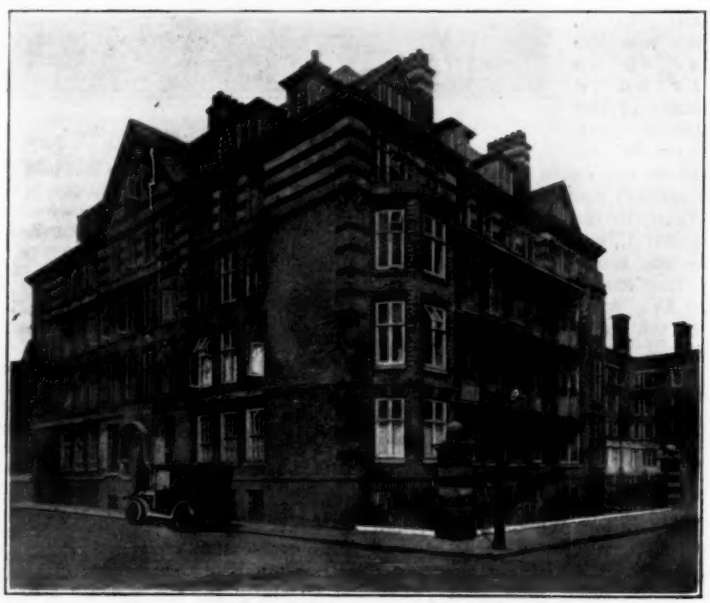
Hospitals I. and II. considered Together.

Considering Hospitals I. and II. together, a feature of great interest on which Lord Knutsford lays emphasis is the newness of the work and of the experience which is being gained. The stresses of civil life, great as they may be, are not often sufficient to upset a healthy nervous system with a well-nourished brain and good antecedents. But the terrible stress of war may suffice to cause a sane man to be found 30 miles away from his proper post with a blank of two days in his memory, or to be bowled over so completely that he can neither read nor write, whilst his inability to do so or to explain himself results naturally in profound depression. This is the typical case of a healthy brain which has succumbed to extreme stress and which will recover completely when the stress is removed and time given for rest and repair. And it is for this class of case which runs the same kind of course on the mental side as, say, an infectious disorder like small-pox or typhus fever on the physical side, that a special hospital can render inestimable service. Naturally many other kinds of case are presented, running a different course and necessitating sometimes a prolonged stay, sometimes transference to Hospital III. or IV., but the curable attack of short duration has a numerical preponderance, and from the side of military efficiency is the most important matter.

Hospital III. in Vincent-square.

Hospital III., started only some three months ago, is of essentially different scope from I. and II., as cases of organic lesions of the nervous system are dealt with, and these are almost all the direct result of wounds and injuries. The hospital is directly under the War Office and has the disposal of beds at the Empire Hospital for Paying Patients, Limited, in Vincent-square, Westminster, S.W., a modern building equipped some years ago on the lines of a first-class nursing home, and looking out on to the large railed square, the playground of the Westminster School, to which the patients have access. The illustration shows the S.E. and S.W. aspects of the house. (Fig. 3.) Two operating theatres are available with all modern appliances, a complete X ray installation, ward kitchens with service lift on every floor, and the most up-to-date electric bell and light fittings in the rooms. The

FIG. 3.



Exterior of Hospital III. in Vincent-square.

neurological cases pass through the hands of consulting physicians and surgeons with the forces overseas, e.g., Mr. C. A. Ballance and Dr. Purves Stewart at Malta, Sir Victor Horsley and Dr. F. Walsh at Alexandria, with Dr. Gordon Holmes and Dr. C. S. Myers and Mr. Percy Sargent at Boulogne. Mr. A. J. Walton is surgeon to Hospital III., and the visiting staff are chosen from the list already given. The medical officer is Lieutenant Geo. Riddoch, R.A.M.C. The War Office pays at the rate of £4 4s. a week per bed, and at the time of writing only 30 out of the available 42 beds have been claimed, the remainder being occupied by general surgical cases from Queen Alexandra's Military Hospital at Millbank.

The cases fall into three classes according as brain, spinal cord, or peripheral nerves are the site of the injury. Of head injuries a large proportion are necessarily immediately fatal or succumb to compression before they are within reach of surgical assistance. A number have been operated on at a base hospital or casualty clearing station within 24 hours of injury, and it is remarkable what severe injuries recover if so treated. A radiogram is essential in every case in order that depressed fractures may not be overlooked or splinters of bone left to hinder recovery or to be the exciting cause later of Jacksonian epilepsy. One lesson already learned is not to touch a septic brain hernia, but to decompress, if necessary, by a fresh opening on the sound side. The spinal cases are the saddest, as complete paraplegia often persists and some special arrangement will be necessary to avoid occupying the beds permanently with these incurable cases. But unexpected improvement often occurs, as the zone of destruction is always surrounded by a zone of functional impairment of unknown extent. Experience here suggests early trephining in every case of complete paraplegia which is not recovering, as it is impossible to tell without operation that the pressure is not due to causes outside the cord—fragments of bone, hæmorrhage, &c.—which can be removed, and a chance of recovery given before degeneration sets in. Even in hopeless cases where no serious improvement is likely, a great deal can be done for the patient. But, to repeat again, the lesson is being learned here as in Hospital I. of conditions previously regarded as well-nigh hopeless which recover rapidly under appropriate treatment.

Uniform System of Records.

At all these hospitals full clinical records are being kept upon a common plan, certain printed forms being supplied by the Medical Research Committee of the National Health Insurance. In the view of the Committee the proper preservation of these records will have great scientific value and importance, quite apart from their immediate historical or military significance. Secretarial assistance has been given by the Committee for supplying information to medical officers abroad with regard to the progress of cases of cerebral or nervous injury received in this country, with a view to the guidance of the treatment of the cases in their earliest stages. Some of the forms for recording the symptoms of nerve injury may be seen in the illustrations to a paper by Dr. Wilfred Harris in our issue of Nov. 13th (p. 1073). The records, when sorted and analysed, are to form one chapter in the Medical History of the War, which should be the most important medical document of our time.

THE Chelsea Hospital for Women has received from the Mercers' Company a special grant of £105 in aid of the rebuilding of the hospital.

CENTENARIANS.—The death of five centenarians was announced last week by the *Times*. Mrs. Alice Diggle, who died at the age of 101 at Norden, near Heywood; Mrs. Elizabeth Irving, of Barrow-in-Furness, who died at Malton, Yorkshire, in her 101st year; Mrs. Elizabeth Fairthorne, of Wallingford, in her 100th year; Mrs. Cracknell, of Kingston, in her 100th year; and Mrs. Caroline Clark, who died at Brook Cottage, Lydiate, near Ormskirk, Lancashire, in her 101st year.

MATERNAL MORTALITY IN CONNEXION WITH CHILD-BEARING.

REPORT OF THE MEDICAL OFFICER OF THE LOCAL GOVERNMENT BOARD.[1]

THE subject of maternal mortality in childbirth in its relation to the still persistent wastage of infant life at home is now exciting daily increasing interest throughout the country. The attitude of the British Government on this question may be gathered from the stirring public appeal of the President of the Local Government Board and his colleagues at the Mansion House Conference of Oct. 27th, to which reference has already been made in these columns.[2]

In the present report Dr. Arthur Newsholme once more animadverts on the deplorable reduction in the fertility of English mothers, to which he has directed attention on several previous occasions. He urges the desirability of still more closely examining the causes of infantile as well as maternal mortality, with a view, if possible, to its further abatement, and in the hope of maintaining effective national fertility at the highest possible standard. The subject is considered primarily from the standpoint of the mother, but a summary statement of the loss of child-life since the date of the previous report is also included. The problem of preventing early infant mortality is obviously inseparable from that of maternal mortality in childbirth. Excessive mortality of mothers in child-bearing means also an excessive proportion of stillbirths, as well as of infant deaths in the early weeks after live birth. As the wellbeing of the mother is essential to the health and vigour of her offspring, the present volume forms a necessary complement to the three reports on infant and child welfare issued by the Board's medical officer in the years 1911–14, and already noticed in our columns.[3] Taken together, these reports afford a valuable contribution to the study of one of the most vital problems of State medicine, and as such will doubtless be welcomed by medical officers of health everywhere. Moreover, the writer deals with his subject in simple and untechnical language; consequently his remarks may profitably be followed even by non-medical persons, who are interested in the welfare of the race.

Dr. Newsholme discusses this problem mainly from the view point of the war. Observing that the great loss of life—much of it our best life—now taking place at the front may be still further increased before the attainment of peace, he again lays stress on the fact that hostilities have occurred after a series of years in which there has been progressive decline in the replenishment of the population by births. The disastrous effects of the steadily falling birth-rate are now once more emphasised; and we are warned that the fall in the death-rate, which happily still continues, cannot keep pace indefinitely should the fall in the birth-rate still persist. Already the "average age" of the national population, with its concomitant proneness to death, is on the increase! The vital importance of preventing further decrease in the balance of births over deaths by the promotion of effort for the preservation of healthy life among mothers and their offspring is accentuated by the consideration that had the birth-rate of 1914 been equal to that of 1876 there would have been added to the English population 467,857 children in addition to the number actually born.

Mortality of Mothers in Child-bearing.

The data before us conclusively prove that in some parts of the country child-bearing is still associated with very excessive mortality among mothers, and in all parts of the country with much suffering and loss of life which is demonstrably avoidable. The majority of deaths of mothers from child-bearing are caused by puerperal fever, hæmorrhage, or convulsions, most cases of which conditions are well within the range of preventive medicine, including therein the treatment of early illness. In the course of the last four years the deaths of mothers from complications of pregnancy and childbirth were equal to four out of every 1000 births—one-third of which were ascribed to puerperal infection. The mortality from conditions incidental to childbirth, other

[1] Wyman and Sons, Fetter-lane. [Cd. 8085.] Price 7½d.
[2] THE LANCET, Nov. 6th, p. 1033.
[3] THE LANCET, Jan. 10th, 1914, p. 129.

than so-called puerperal fever, is much higher in the provinces than in London, very probably because of the much greater accessibility there of skilled assistance in labour than in other parts of the country. This difference means that in England and Wales more than 800 mothers die in each year as the result of childbirth, who would probably have survived had the experience of the rest of England been as favourable as that of the metropolis. In respect of puerperal fever, however, the records of London are no more favourable than those of the provinces, where there is a remarkable uniformity in this grave experience among parturient mothers. From a valuable chart in the report of the medical officer of the Local Government Board it appears that a substantial reduction in English puerperal mortality has recently been secured, the death-rate from this condition in the year 1913 having been lower than in 1871 by 30 per cent. Notwithstanding this improvement, however, it must be regarded as highly unsatisfactory that, in the year 1914, for every 644 infants born one mother lost her life from puerperal infection, either present before the birth of the infant or more often acquired during or soon after birth. A large proportion of this mortality, with its still greater amount of associated illness and suffering, could unquestionably be prevented if adequate antenatal care and skilled attendance at and after confinement could be secured. If this infective condition could be eliminated from midwifery practice everywhere, as it has been already in many of the great lying-in hospitals, a saving of 1100 lives of mothers would be achieved annually in this country.

A valuable accession to our knowledge of childbirth mortality in hospitals is contained in Dr. Isabella Cameron's study of the subject, portions of which are cited in this report. The data are derived from four lying-in institutions, including two extern lying-in charities. In the out-patient departments the proportion of mothers dying was respectively only 1·1 and 0·4 per 1000 infants born alive, as compared with 3·53 at corresponding ages, according to national experience. In one exclusively in-patient hospital the maternal death-rate was only 3 in 1000 live births, and in another hospital admitting in- and out-patients the same low rate was attained. The reliability of the returns of deaths from childbirth is being increased by the Registrar-General's practice of writing confidentially to medical attendants who make vague returns respecting pelvic causes of death in women, where parturition is not mentioned in the certificate. Dr. Newsholme is confident that the rates now presented by him as to the *total mortality* from childbirth correspond fairly with the facts, and that serious differences in local rates really imply either a heavier or a lighter death-toll on parturient mothers. It is doubtful whether equal value attaches to the stated death-rates from "puerperal fever," and from "other diseases of childbirth" *taken separately*. The number of deaths from puerperal fever may equal those from other conditions due to childbirth, or may be only half or a smaller proportion of these. Thus, the ratio of the death-rate from other accidents of childbirth to that from puerperal fever (the latter taken at 100) varies from 411 in Halifax and 346 in Swansea to 108 in Reading and 84 in Norwich. These extreme local differences suggest that in death certification there may be variations in the extent to which deaths from puerperal fever are returned under the head of other conditions incidental to parturition. Moreover, it is probable that in some cases of this kind the fact of their association with childbirth escapes certification altogether. In comparing separate localities with each other the safest plan is to rely solely on the death-rates from the two sets of conditions taken together. For the most part this plan has been followed in the present report. The total mortality from childbirth is higher in Wales as a whole than in England, the rates being 5·75 and 4·0 respectively per 1000 births. Some part of this excess may be due to insufficiency of skilled assistance in labour and some part to a lower standard of cleanliness on the part of qualified attendants or of the "handy women" who assist in the absence of the doctor or midwife. But excessive childbirth fatality is by no means limited to the Principality. England contains many areas which are still more unfavourably situated in this respect. The textile towns are conspicuous amongst these. It is likely that unsatisfactory midwifery is responsible there also for exacting a heavy toll from parturient mothers. Apart from this, however, a close relationship probably exists between factory labour and excessive mortality from child-bearing. Moreover, there is considerable evidence that the use of abortifacients has an unfavourable influence in the same direction, although the use of these is not confined to textile districts. Child-bearing causes temporary suspension of earning capacity in married women, and as a result dangerous steps are sometimes taken to determine pregnancy prematurely. Apart from such methods, there is evidence that industrial work during the later stages of pregnancy increases the liability to serious complications before and during parturition. A list of eight textile towns is presented showing in every case a child-birth mortality exceeding that of Wales. Among these Dewsbury stands first with a rate of 8·54. Rochdale next with a rate of 7·21. The lowest child-birth mortality prevails in the south of England, especially in London and the neighbouring rural districts, where the rates average less than 3 in 1000 births. There can be no reasonable doubt that the quality and availability of skilled assistance before, during, and after labour are the most important factors in determining the serious differences in child-birth mortality which are here shown to exist.

Notification of Puerperal Fever.

The complex condition known as "puerperal fever" has been compulsorily notifiable since 1899. An inclusive definition of the term puerperal fever has been suggested by the Obstetrical Society of London, and probably affords a fairly practical guide to medical certifiers. Under this term should be grouped septicæmia and pyæmia, including peritonitis, and all cases of acute pelvic inflammation occurring in connexion with childbirth. It appears that in England the duty of notifying cases of this condition is complied with more completely than in Wales. In the last four years the average case mortality in notified cases in the country generally was 58 per cent. In certain counties and county boroughs notifications were actually fewer than the deaths, thus showing a regrettable laxity in fulfilling the statutory duty of notification. On the other hand, there are 14 county boroughs in which the case mortality was less than 50 per cent. It is interesting to note that in Manchester, where active municipal supervision is enforced, a degree of completeness of notification is shown by a case mortality of only 19 per cent. Adopting this as a fair standard it is evident that efforts are needed throughout the country to secure closer coöperation of medical practitioners in notifying the septic complications of childbirth.

Antenatal Mortality—Stillbirths.

From evidence published by the Royal Commission on Venereal Disease, it appears probable that a considerable part of the antenatal mortality of infants and about half those of the stillbirths are ascribable to syphilis. To the total antenatal mortality must be added the large proportion of infant mortality after birth due to antenatal disease. The extent to which antenatal mortality occurs is very liable to be overlooked. In the practice of midwives in large Lancashire towns the stillbirths amount to about 3 per cent. of all births attended by them. Dr. A. Routh, on the basis of a wide experience, estimates that abortions at an earlier period of pregnancy are four times as numerous as stillbirths. This would imply a total antenatal mortality of 150 per 1000 births, which is much higher than the total mortality in the first year after birth.

THE death occurred on Nov. 16th of Professor Raphael Meldola, F.R.S., aged 66, professor of chemistry in Finsbury Technical College, and a leading authority on coal-tar colours and photographic chemistry.

HIGH DEATH-RATE IN LONDONDERRY.—At a meeting of the Public Health Committee of the city of Londonderry held on Nov. 9th a communication was received from the Local Government Board, in relation to the recent high death-rate in that city from whooping-cough, tuberculosis, and diarrhœal diseases. It appears the city council has not, so far, adopted a scheme for the detection, prevention, and treatment of tuberculosis under the Tuberculosis Prevention Act of 1908, and the National Insurance Act. The Local Government Board hope this important matter will be no longer left in abeyance.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE undermentioned Surgeons have been promoted to the rank of Staff-Surgeons in His Majesty's Fleet:—Dated Nov. 12th: William Harold Edgar and David Hughes Charles Given.

The following appointments have been notified:—Fleet-Surgeons: G. Gibson to the *Vivid*, for Pembroke Dock Hospital and Yard; R. S. Osborne to the *Indomitable*; and H. F. Iliewicz to the *Attentive*, additional. Staff Surgeon: R. L. Jones to the *Pembroke*, additional, for Chatham Hospital, temporary, for instruction of Auxiliary Sick Berth Staff. Temporary Surgeons: T. W. Drummond, J. Cameron, and G. Shorland to the *Victory*, additional, for Haslar Hospital.

The undermentioned have been entered as Surgeons for temporary service:—Dated Nov. 11th: Alexander Gordon Taylor. Dated Nov. 12th: Alexander Irvine Esslemont and Leslie Mayhew Arnold, B.A.

REGULAR FORCES: PERSONAL STAFF.

Captain G. H. Gibson, Canadian Army Medical Corps, to be Aide-de-Camp (dated Sept. 14th).

ARMY MEDICAL SERVICE.

Colonel William W. Pike, D.S.O., on completion of four years' service in his rank, is retained on the Active List, under the provisions of Article 120, Royal Warrant for Pay and Promotion, and to be supernumerary to establishment (dated Nov. 9th).

Lieutenant-Colonel Hugh S. Thurston, C.M.G., to be temporary Colonel whilst holding the appointment of Assistant Director of Medical Services (dated Oct. 3rd).

ROYAL ARMY MEDICAL CORPS.

Temporary Captain Godfrey M. Huggins relinquishes his commission (dated Oct. 5th).

Temporary Captain Arthur Matthey relinquishes his commission (dated Oct. 30th).

The undermentioned temporary Lieutenants relinquish their commissions:—

Dated Oct. 2nd: George C. Adeney.

Dated Oct. 5th: Edmund R. Dermer, Charles D. Roberts, Dudley T. Birt, Alan W. Gaye, James W. Littlejohn, and Neil F. Sinclair.

Dated Oct. 6th: John H. Sheldon.

Dated Oct. 7th: Ernest W. Milne and David Riddell.

Dated Oct. 9th: John Hewat.

Dated Oct. 10th: William P. H. Munden, James Fraser, Patrick K. Murphy, Reginald W. Gemmell, James G. Copland, James H. Connolly, Christopher Elliott, Henry D. H. Willis-Bund, and Francis F. Brown.

Dated Oct. 12th: John Davidson.

Dated Oct. 13th: Adam Gray and Robert S. Taggart.

Dated Oct. 21st: Victor L. Connolly, Douglas F. Kennard, Frederick G. Norbury, John T. W. Stewart, Alexander Stephen, and George H. Urquhart.

Dated Oct. 22nd: James L. Whatley.

Dated Oct. 24th: David N. Knox, Andrew R. Hamilton, and Evan W. Griffith.

Dated Oct. 25th: Horace C. Barr.

Dated Oct. 28th: Thomas H. Agnew.

Dated Oct. 30th: William S. Stevenson.

Dated Oct. 31st: John B. Wood.

Dated Nov. 4th: Warren Meade.

Dated Nov. 5th: Harold Kempsey, on account of ill-health.

SPECIAL RESERVE OF OFFICERS.

Royal Army Medical Corps.

Captain William St. L. Dowse resigns his commission on account of ill-health.

The undermentioned Lieutenants (on probation) are confirmed in their rank: Maurice B. King and Roland H. Graham.

John Bernard Cavenagh to be Lieutenant (on probation).

TERRITORIAL FORCE.

Royal Army Medical Corps.

South-Eastern Mounted Brigade Field Ambulance: The undermentioned Lieutenants to be Captains: Cholmondeley Webb and A. G. S. Logie.

North Midland Mounted Brigade Field Ambulance: Lieutenant Lionel A. Dingley to be Captain.

East Lancashire Field Ambulance: Major Robert C. Rodgers, The East Lancashire Regiment, to be Major (temporary).

Northern General Hospital: The undermentioned Lieutenants to be Captains: William Stott and Thomas Whitelaw. Nathan Judah Wigram to be Lieutenant.

Wessex Field Ambulance: Captain Frederick E. Stokes to be temporary Major.

Wessex Casualty Clearing Station: Major Robert A. Draper, from Yorkshire Mounted Brigade Field Ambulance, to be Major. Charles Telfer to be Lieutenant.

South Midland Field Ambulance: Surgeon Captain George Mackie, from South Midland Brigade, Royal Field Artillery, to be Captain. Captain George Mackie to be temporary Major.

South Midland Casualty Clearing Station: Lieutenant Astley B. Prosser to be Captain.

Lowland Field Ambulance: William Goldie (late Lieutenant, The Royal Scots) to be Lieutenant.

London General Hospital: Lieutenant William F. B. Bensted-Smith to be Captain. Lieutenant Roger P. Ninnis resigns his commission on account of ill-health.

Southern General Hospital: Major James T. J. Morrison to be Lieutenant-Colonel.

Highland Casualty Clearing Station: The undermentioned Lieutenants to be Captains: James Davidson, Joseph E. Milne, Charles Forbes, Alexander J. Presslie, and James McL. Macfarlane.

North Midland Field Ambulance: Frederick Charles Pridham to be Lieutenant.

Welsh Field Ambulance: Lieutenant-Colonel Arthur L. Jones, from the Territorial Force Reserve, to be Lieutenant-Colonel. Lieutenant-Colonel Arthur L. Jones is seconded for duty as a Senior Medical Officer. The undermentioned Lieutenants to be Captains: Thomas P. Edwards and John W. Dale.

Scottish General Hospital: Captain Alexander J. Archibald is seconded for duty with an Ambulance.

Sanitary Service: Robert John Fleming to be Captain, whose services will be available on mobilisation.

London (City of London) Sanitary Company: Lieutenant John Golding to be Captain.

Home Counties Casualty Clearing Station: Thomas Watson Hancock to be Lieutenant.

Eastern General Hospital: Victor Thomas Ellwood to be Lieutenant.

Attached to Units other than Medical Units.—Captain Charles C. Grummitt, from North Midland Field Ambulance, to be Captain. Lieutenants to be Captains: John F. Ward, Andrew L. McCully, Edward S. Johnson, William Brown, Arthur H. Fullerton, Henry W. Lance, and Richard P. Pollard. George Johnston to be Lieutenant. Lieutenant William L. Griffiths relinquishes his commission on account of ill-health.

ST MARY'S HOSPITAL (UNIVERSITY OF LONDON).—The following entrance scholarships have been awarded at St. Mary's Hospital Medical School: University Scholarship of 50 guineas (open), H. T. Prys Jones, University College, Cardiff; Open Scholarships in Natural Science, £100, A. S. Wright, Latymer Upper School; £30, R. M. H. Newbery, Bristol Grammar School; Frederic John Palmer Scholarship, £25, B. W. Roffey, Epsom College. The Epsom College Scholarship of 50 guineas has been awarded, on the nomination of the headmaster, to T. S. North, Epsom College.

DEATH OF A MIDDLESEX CORONER.—Dr. William Bruce Gordon-Hogg, coroner for the Western District of Middlesex, died at his residence, Esmond-gardens, Bedford Park, Chiswick, after a long illness, on Nov. 10th, in his sixty-sixth year. He was educated at the University of Edinburgh, where he graduated M.D. in 1873, and held the posts of house surgeon and assistant in the women's and eye wards at the Royal Infirmary, Edinburgh. For some time he was resident medical officer at Chalmers' Hospital. He was a past president of the Royal Medical Society of Edinburgh.

ABERDEEN INFIRMARY: DEFICIT IN FUNDS.—An earnest appeal for increased support has been made on behalf of the Aberdeen Royal Infirmary by the Lord Provost of the city, president of the Infirmary and Asylum Corporation, by the chairman of the infirmary board, and by the clerk and treasurer. The statement submitted to the public points out that in 1914 there was a financial deficit of £4913, and that further annual deficits will impair the usefulness of the infirmary, and may render it necessary to curtail the accommodation, which even at present is not sufficient to meet the requirements of the district, notwithstanding that last year there were treated in the institution 3242 in-patients and 15,214 out-patients. Although the work of the infirmary has been increasing year by year the ordinary income during the last ten years has been practically stationary at about £11,500. There is included in that amount the interest on invested funds, which has risen during that period from £2500 to £4000, and there has therefore been a corresponding decrease in the contributed income.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

In the 96 English and Welsh towns with populations exceeding 50,000 persons at the last Census, 6728 births and 5363 deaths were registered during the week ended Saturday, Nov. 13th. The annual rate of mortality in these towns, which had been 13·3, 13·8, and 14·2 per 1000 in the three preceding weeks, further rose in the week under notice to 15·4 per 1000 of their aggregate population, estimated at 18,136,180 persons at the middle of last year. During the first six weeks of the current quarter the mean annual death-rate in these towns averaged 14·3, against a corresponding rate of 15·0 per 1000 in London. The annual death-rate last week ranged from 5·2 in Ilford, 6·6 in Gillingham, 8·5 in Enfield, 8·7 in Southend-on-Sea and in Barrow-in-Furness, and 8·9 in Smethwick and in Wakefield, to 21·1 in Middlesbrough, 21·4 in Gateshead, 22·7 in West Hartlepool, 23·8 in St. Helens, and 26·1 in Barnsley.

The 5363 deaths from all causes were 418 in excess of the number in the previous week, and included 401 which were referred to the principal epidemic diseases, against numbers declining from 973 to 444 in the six preceding weeks. Of these 401 deaths, 175 resulted from infantile diarrhœal diseases, 74 from diphtheria, 67 from measles, 51 from whooping-cough, 20 from scarlet fever, and 14 from enteric fever, but not one from small-pox. The mean annual death-rate from these diseases was equal to 1·2, or 0·1 per 1000 less than in the previous week. The deaths of infants (under 2 years) from diarrhœa and enteritis, which had steadily declined from 808 to 226 in the six preceding weeks, further fell to 175, and included 48 in London, 13 in Liverpool, and 7 each in Birmingham, Manchester, and Gateshead. The deaths referred to diphtheria, which had been 50, 73, and 71 in the three preceding weeks, rose to 74, and included 22 in London, 5 in Sheffield, and 3 in Hull. The fatal cases of measles, which had been 40, 37, and 57 in the three preceding weeks, further rose to 67, and caused the highest annual death-rates of 2·5 in Stockport, 2·6 in Lincoln, 3·0 in Swindon, 3·5 in Hastings, 3·9 in Barnsley, and 6·2 in Gloucester. The deaths attributed to whooping-cough, which had been 31, 36, and 44 in the three preceding weeks, further rose to 51 last week, of which 14 occurred in London, 5 in Liverpool, 4 in Birmingham, and 3 in Stoke-on-Trent. The deaths referred to scarlet fever, which had been 26, 25, and 23 in the three preceding weeks, further fell to 20 last week, and included 8 in London and 2 in Manchester. The fatal cases of enteric fever, which had been 11, 25, and 23 in the three preceding weeks, fell to 14, of which 3 were registered in London and 2 each in Stockport, Manchester, and Rotherham.

The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, which had been 3110, 3110 and 3066 at the end of the three preceding weeks, further declined to 3061 on Saturday last; 339 new cases were admitted during the week, against 462, 378, and 344 in the three preceding weeks. These hospitals also contained on Saturday last 1619 cases of diphtheria, 71 of measles, 51 of enteric fever, and 7 of whooping-cough, but not one of small-pox. The 1496 deaths from all causes in London were 255 in excess of the number in the previous week, and corresponded to an annual death-rate of 17·3 per 1000. The deaths referred to diseases of the respiratory system, which had increased from 169 to 265 in the four preceding weeks, further rose to 340 in the week under notice, and were 159 in excess of the number registered in the corresponding week of last year.

Of the 5363 deaths from all causes in the 96 towns, 216 resulted from different forms of violence and 455 were the subject of coroners' inquests, while 1614 occurred in public institutions. The causes of 39, or 0·7 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest. All the causes of death were duly certified in Leeds, Bristol, Bradford, Hull, Newcastle-on-Tyne, Nottingham, and in 68 other smaller towns. Of the 39 uncertified causes, 7 were registered in Birmingham, 4 in Liverpool, and 2 each in London, Stoke-on-Trent, St. Helens, Warrington, Manchester, Preston, South Shields, and Gateshead.

HEALTH OF SCOTCH TOWNS.

In the 16 largest Scotch towns with an aggregate population estimated at 2,345,500 persons at the middle of this year, 884 births and 778 deaths were registered during the week ended Saturday, Nov. 13th. The annual rate of mortality in these towns, which had been 15·7, 16·2, and 16·1 per 1000 in the three preceding weeks, rose to 17·3 per 1000 in the week under notice. During the first six weeks of the current quarter the mean annual death-rate in these towns averaged 16·2, against a corresponding rate of 14·3 per 1000 in the large English towns. The annual death-rate last week ranged from 8·2 in Clydebank, 8·3 in Coatbridge, and 12·2 in Falkirk, to 20·9 in Dundee, 21·7 in Kirkcaldy and in Ayr, and 22·1 in Perth.

The 778 deaths from all causes were 52 in excess of the number in the previous week, and included 89 which were referred to the principal epidemic diseases, against numbers declining from 102 to 61 in the five preceding weeks. Of these 89 deaths, 31 resulted from infantile diarrhœal diseases, 26 from measles, 14 from scarlet fever, 13 from diphtheria, 3 from whooping-cough, and 2 from enteric fever, but not one from small-pox. The mean annual death-rate from these diseases was equal to 2·0, or 0·8 per 1000 above that recorded in the large English towns. The deaths of infants (under 2 years) from diarrhœa and enteritis, which had declined from 54 to 18 in the five preceding weeks, rose to 31, of which 14 were registered in Glasgow, 6 in Dundee, 5 in Aberdeen, and 2 in Greenock. The deaths referred to measles, which had been 17, 20, and 15 in the three preceding weeks, rose to 26 last week, and comprised 6 each in Glasgow, Edinburgh, and Greenock, 5 in Hamilton, 2 in Ayr, and 1 in Motherwell. The fatal cases of scarlet fever, which had been 18, 14, and 12 in the three preceding weeks, rose to 14, and included 5 in Glasgow, 3 in Edinburgh, and 2 each in Dundee and Aberdeen. The deaths attributed to diphtheria, which had been 9, 14, and 9 in the three preceding weeks, rose to 13 last week, and comprised 5 in Edinburgh, 3 in Glasgow, 2 each in Dundee and Paisley, and 1 in Aberdeen. Of the 3 deaths referred to whooping-cough, 2 were registered in Glasgow and 1 in Aberdeen. The 2 fatal cases of enteric fever occurred in Glasgow.

The deaths referred to diseases of the respiratory system, which had been 136, 158, and 150 in the three preceding weeks, rose to 166 in the week under notice, and were 55 above the number registered in the corresponding week of last year. The deaths from violence numbered 19, against 33 and 32 in the two preceding weeks.

HEALTH OF IRISH TOWNS.

In the 27 town districts of Ireland, with an aggregate population estimated at 1,212,380 persons at the middle of this year, 489 births and 391 deaths were registered during the week ended Saturday, Nov. 13th. The annual rate of mortality in these towns, which had been 16·0, 16·9, and 15·8 per 1000 in the three preceding weeks, rose to 16·8 per 1000 in the week under notice. During the first six weeks of the current quarter the mean annual death-rate in these towns averaged 16·1, against corresponding rates of 14·3 and 16·2 per 1000 in the English and Scotch towns respectively. The annual death-rate last week was equal to 20·9 in Dublin (against 17·3 in London and 16·9 in Glasgow), 16·0 in Belfast, 14·3 in Cork, 7·6 in Londonderry, 19·0 in Limerick, and 9·5 in Waterford, while in the 21 smaller towns the mean death-rate did not exceed 13·7 per 1000.

The 391 deaths from all causes were 24 in excess of the number in the previous week, and included 36 which were referred to the principal epidemic diseases, against 51 and 27 in the two preceding weeks. Of these 36 deaths, 14 resulted from infantile diarrhœal diseases, 6 each from scarlet fever and diphtheria, 4 from whooping-cough, and 3 each from enteric fever and measles, but not one from small-pox. The mean annual death-rate from these diseases was equal to 1·5, against corresponding rates of 1·2 and 2·0 per 1000 in the English and Scotch towns respectively. The deaths of infants (under 2 years) from diarrhœa and enteritis, which had been 36, 23, and 15 in the three preceding weeks, further fell to 14, and comprised 9 in Dublin, 2 each in Belfast and Waterford, and 1 in Lisburn. The deaths referred to scarlet fever, which had been 3, 8, and 4 in the three preceding weeks, rose to 6, and comprised 4 in Belfast and 2 in Dublin. The fatal cases of diphtheria, which had been 3, 6, and 3 in the three preceding weeks, rose to 6, of which 4 occurred in Belfast. The 4 deaths attributed to whooping-cough, of which 2 were registered in Dublin, were equal to the average in the earlier weeks of the quarter. Of the 3 deaths from measles, 2 were recorded in Dublin and 1 in Belfast; and of those from enteric fever 2 were recorded in Dublin and 1 in Drogheda.

The deaths referred to diseases of the respiratory system, which had been 60, 53, and 65 in the three preceding weeks, were again 65 in the week under notice. Of the 391 deaths from all causes, 127, or 32 per cent., occurred in public institutions, and 3 resulted from violence. The causes of 12, or 3·1 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest; in the large English towns the proportion of uncertified causes did not exceed 0·7 per cent.

Correspondence.

"Audi alteram partem."

MEDICAL STUDENTS AND THE WAR OFFICE.

To the Editor of THE LANCET.

SIR,—From a letter hanging on the notice-board of the Physiological School of this University I extract the following sentences:—

Lord Kitchener desires me to say that the policy of this Department has been to encourage medical students to continue their studies in order to qualify as medical practitioners at the earliest possible date.

It has been arranged that any students who have joined units of the Territorial Force and wish to resume their studies shall be released forthwith from service.

The letter is dated from the War Office less than a year ago. The policy set out in it, which to many who are intimately acquainted with the medical needs of the country seems a sound and wise one, has now been suddenly reversed, and the medical students do not know what to do or where to turn for consistent guidance.

The authorities at the War Office are very uneasy about the supply of doctors to the army. At their request a War Emergency Committee in connexion with the British Medical Association has been established, and a committee is working with all its powers to see if they can find by the middle of January some 2000 odd medical men which the War Office deem necessary. Although their efforts have been blessed with some measure of success it seems doubtful if the committee will be able to meet completely the demands made upon them. Owing to the efforts of Lord Derby recruits for the general army are obviously joining in considerable numbers. The new army thus being formed will require more and more doctors, and yet the effect of the present policy of the War Office is to stop all preliminary medical education except in so far as the medical students are physically unfit or are of the female sex. I do not see how the War Office can have it both ways. They cannot continue to demand more and more doctors, and at the same time practically close down the education of the student.

It is to my mind of the greatest national importance that a strong effort should be made to save at least third-year men who have recently passed the second M.B. or who are about to pass it next month. The knowledge of a man who has passed in anatomy and physiology would qualify him to render first-aid of great value. He at least knows where an artery or a vein runs, and where to apply a tourniquet. The navy, as ever, seems to have found out a more excellent way. They are taking such men and turning them into probationers, and very wisely, if I am informed correctly, they alternate six months' service afloat with six months' service ashore, during which time the student is encouraged and expected to read up for his next examination, and is thus qualifying himself to help even more nobly in the future.

I am, Sir, yours faithfully,

A. E. SHIPLEY.

Christ's College, Cambridge, Nov. 14th, 1915.

THE ORGANISATION OF THE MEDICAL PROFESSION FOR WAR SERVICE.

To the Editor of THE LANCET.

SIR,—There will be a discussion at the Harveian Society on Thursday, Nov. 25th, at the Stafford Rooms, Titchborne-street, Edgware-road, W., on the organisation of the medical profession for war service. This topic is assuming very great proportions, for the actual personnel of the Army Medical Service must already be approaching 10,000, in place of the peace establishment of 1000. Such an increase will mean very great dislocation in the condition of medical practice in this country, and as further demands are being made and will be made upon the profession, the fullest discussion of questions relating to the war and after is most desirable.

The position is rendered all the more acute by the recent pronouncement of Lord Derby with reference to the calling up of unmarried men. It will not be possible to exempt such men in the medical profession while the rest of the community is put under pressure. Hence there is the more reason that the medical men should consider how such a situation is to be met. The discussion will be opened by Major J. Galloway, who has been intimately connected with the work of the Central Medical War Committee. It is hoped that as many members of the society as possible will be present, and any visitors who may be interested in the matter are cordially invited to attend.

We are, Sir, yours faithfully,

FREDERICK S. LANGMEAD,
WILFRID M. DAWSON, } Honorary Secretaries.

Nov. 16th, 1915.

THE LATE MR. GEORGE COATS.

To the Editor of THE LANCET.

SIR,—I should like to add my tribute to the memory of Mr. George Coats, by whose premature death ophthalmology has suffered a loss which it can ill afford. He belonged to the small band whose chief interest is centred in the scientific advancement of their subject. This is not to say that he was a weak clinician. His enthusiasm was catholic and he put forth his best energies in the service of his patients. Indeed, it can be said without exaggeration that his death was largely due to the wearing effects of hospital work, much of his vitality being sapped by work which ought really to be relegated to junior assistants. It is, however, as a pathologist that he will be remembered. As curator of the museum and pathologist to the Moorfields Eye Hospital he was in his element. Paper after paper upon pathological conditions of the eye, particularly those of congenital origin and those associated with disease of the blood-vessels, and those found in lower animals, came from his pen and will be found in the Royal London Ophthalmic Hospital Reports, the Transactions of the Ophthalmological Society and Ophthalmological Section of the Royal Society of Medicine, the *Ophthalmoscope*, &c. His name is specially associated with massive exudation of the retina, which is often referred to abroad as "Coats's disease." His Hunterian lectures to the Royal College of Surgeons in 1910 dealt with congenital abnormalities and are a model of clear reasoning founded on exhaustive investigation of the material and accurate knowledge of embryology. Coats was

much interested in the modern history of ophthalmology, and a paper which he contributed recently to the Ophthalmic Hospital Reports on the famous quack "Chevalier" Taylor displays the most painstaking research, and the vagaries of his subject were obviously a source of amusement to the author. But he was also an omnivorous reader, especially of ancient history, and he regarded his subscription to the London Library as one of his most satisfactory investments. Apart from reading, his one interest outside his work was music, and he was never happier than when he was listening to an opera or a concert of chamber music. Coats was very reserved and very tenacious of his opinions; he admitted few into the intimacy of his friendship, but he was friendly to all, and all were friendly to him and appreciated his sterling worth.

I am, Sir, yours faithfully,

Queen Anne-street, W., Nov. 13th, 1915. J. H. PARSONS.

PREVENTION OF ACNEFORM IODIDE ERUPTION.

To the Editor of THE LANCET.

SIR,—Some two years ago a naval service man about 40 years of age came to me with a history of having been discharged on account of increasing deafness. His account of the treatment in a naval hospital was very suggestive of specific. I gave him iodide of potassium, but in a few days his face was an angry mass of pustular eruption, some pustules being a quarter of an inch across. Being an old service man he bore his trouble patiently, but the reaction became so violent that it was necessary to stop the drug. Before treatment his face was marked with a considerable number of comedones. I tried various antiseptics and ointments and then repeated the iodide, but within three or four days the eruption was as bad as ever. I had an auto-vaccine made but no good result was observed. I then sent him to a London hospital, where his deafness was diagnosed as specific and "606" was injected. He was not much affected but did not seem to get worse so rapidly. I tried several times again with iodide of potassium, but each time the same story was repeated.

I then tried "iodex" locally for some four weeks, and then while still applying iodex I began the iodide gr. xv. three times daily again, and to my great satisfaction I find that his face remains clear. He is regularly using both the iodex and iodide of potassium, but when on two occasions he has neglected to apply the ointment, small pustules have appeared, quickly, however, drying up and disappearing on again using iodex. I have given him liq. arsenicalis and recommend diluting each dose of iodide with a tumblerful of water. I am thankful to say his deafness is decreasing steadily, and also to add that a right facial paralysis which he has had for years is recovering, and movement of muscles, which had not occurred for years, is now possible. I venture to make this case known, as without some such substance as iodex the *essential* use of iodide was impossible.

I am, Sir, yours faithfully,

R. C. T. EVANS,
Temporary Captain, R.A.M.C.

Military Hospital, Western Heights, Dover, Nov. 9th, 1915.

THE Nobel Prize for Physics in 1915 is to be divided between Professor W. H. Bragg, of Leeds, and his son, Mr. W. L. Bragg, of Cambridge, for research into the relation of crystals and X rays.

The War.

THE CASUALTY LIST.

THE following names of medical men appear among the casualties announced since our last issue:—

Died.

Captain J. F. Fairley, R.A.M.C., received his medical education at Melbourne University and was resident surgeon at St. Peter's Hospital, Henrietta-street, London, W.C., prior to joining the Royal Army Medical Corps in August, 1914.

Wounded.

Captain F. V. Bevan-Brown, R.A.M.C.
Lieutenant J. M. McLachlan, R.A.M.C.
Captain G. Rickman, R.A.M.C.
Major C. H. Turner, R.A.M.C.
Captain H. J. Burke, R.A.M.C., attached to the 8th West Yorks Regiment (T.F.).
Lieutenant J. B. Woodrow, R.A.M.C.
Lieutenant L. J. J. Nye, R.A.M.C., attached to the 2nd Royal Berks Regiment.

Suffering from Gas Poisoning.

Lieutenant G. Redpath, R.A.M.C.

THE SINKING OF THE "ANGLIA."

The British hospital ship *Anglia* was sunk shortly after mid-day on Wednesday, Nov. 17th, by striking a mine in mid-channel. She was a comparatively small vessel of 1800 tons, and was carrying at the time 13 officers and 372 other ranks, of whom about 300 are reported as saved by a patrol vessel. Two hospital trains bearing some of the victims arrived at Charing Cross on Wednesday night, and the patients were distributed among the various London hospitals. The matron and two nurses are reported among the saved. A further interest attaching to the sad event is that the *Anglia* was the vessel on which the King recently returned from France.

CENTRAL MEDICAL WAR COMMITTEE: RECRUITING FOR THE NAVAL AND MILITARY MEDICAL SERVICES.

On August 17th last the Central Medical War Committee advised all the local War Committees that, acting on the urgent request of the Director-General of the Army Medical Services to provide an additional large number of military medical officers, the committee had resolved that each area should be asked to furnish a number calculated on the basis of the proportion the medical population of the area bore to the total number required. The following is a list of the areas which, up to the present date (Nov. 15th), have furnished their quota or more:—

Barnsley.
Birkenhead.
Blackpool.
Blyth.
Dudley.
Gateshead.
Great Yarmouth.
Guildford.
Halifax.
Hartlepools.
Hexham.
Holland.
Horsham.
Huddersfield.
Isle of Man.
Lewisham.
Manchester.
North Carnarvon and Anglesey.
Norwich.
Nottingham.
Oldham.
Preston.
Richmond.
Rochdale.
Shropshire and Mid Wales.
Tower Hamlets.
Trowbridge.
Warwick and Leamington.
West Suffolk.

The Committee, in publishing this list, is anxious to make it clear that the appearance of an area in this list does not necessarily mean that it is not likely to be called upon to furnish more medical officers, as the quota was a provisional one which may be increased or diminished in the future according to local conditions.

THE SCOTTISH MEDICAL SERVICE EMERGENCY COMMITTEE: THE MEDICAL PROFESSION AND LORD DERBY'S RECRUITING SCHEME.

This Committee, which for the last six months has been actively engaged in recruiting medical officers for the army, has now been appointed the "tribunal" for Scotland to deal with questions affecting the liability of medical men to undertake military service. The following is an excerpt from the letter of appointment addressed to the convener of the Committee at the Royal College of Physicians, Edinburgh, by the Assistant Director-General of the Army Medical Service, dated from the War Office, Nov. 12th: "I have been directed by Sir A. Keogh to acknowledge your letter of the 9th November, and in reply am to say that your Committee is to be regarded as a 'tribunal' for medical purposes, and that you are empowered to issue letters of excuse to medical men whom you think it would be undesirable to call upon to undertake military service." The Committee will shortly make a public announcement of the manner in which they propose to discharge this important national duty.

The Committee is constituted as follows:—Dr. A. H. Freeland Barbour, President of the Royal College of Physicians; Mr. J. W. B. Hodsdon, President of the Royal College of Surgeons; Dr. Ebenezer Duncan, President of the Royal Faculty of Physicians and Surgeons of Glasgow; Professor J. A. Kynoch, Dean of the Faculty of Medicine, University of St. Andrews; Professor T. H. Bryce, Dean of the Faculty of Medicine, University of Glasgow; Professor T. Shennan, Dean of the Faculty of Medicine, University of Aberdeen; Professor H. H. Littlejohn, Dean of the Faculty of Medicine, Edinburgh University; Dr. John Adams, Glasgow, Vice-chairman, Scottish Committee, British Medical Association; Dr. G. C. Anderson, Methil, Secretary, Fife Branch, British Medical Association, and of the Fife County Local Medical and Panel Committees; Dr. J. R. Currie, Edinburgh, senior medical officer, Scottish National Insurance Commission; Dr. John Gordon, Aberdeen, President, Aberdeen Branch, British Medical Association; Dr. J. R. Hamilton, Hawick, Chairman, Scottish Committee, British Medical Association; Dr. John C. McVail, Deputy Chairman, Scottish National Insurance Commission; Dr. John Playfair, President of the Edinburgh Medical Guild; Dr. John Stevens, Secretary, Edinburgh Branch, British Medical Association.

The convener is Dr. Norman Walker, Edinburgh, Direct Representative for Scotland on the General Medical Council, and the secretary to the Committee is Mr. T. H. Graham, Royal College of Physicians, 9, Queen-street, Edinburgh.

HOSPITALS IN SERBIA.—The latest news confirms the fact that Lady Paget remained with her hospital at Uskub when the Serbs withdrew, as it was too late to transfer the patients from the crowded wards, and that the chief medical officer, Dr. T. G. Maitland, of Birmingham, and all the staff elected to remain with her, among whom are mentioned Dr. G. H. Osborne and Dr. C. E. Fox, of America, and Dr. Catherine Travis, of Canada. The retreating Serbs are stated to have left by way of precaution 200 Austrian prisoners to act as attendants and servants in the hospital, and the Bulgarians on their arrival to have treated the unit with courtesy. The other three units of the Serbian Relief Fund—namely, Mrs. Stobart's (Wounded Allies) Hospital at Kragujevatz, and the two British Farmers' Hospitals at Belgrade and Pojarevatz, are also with little doubt in enemy hands, as well as a unit of the Scottish Women (N.U.W.S.S.) at Kragujevatz under Dr. Inglis. The Foreign Office has applied to the American Ambassadors at Vienna and Berlin to use their influence to have them well treated and liberated should they want to get away. A second Scottish Women's unit under Dr. Alice Hutchinson has just been reported well at Pojega near Ujitsé. Nothing has yet been heard from the two British units at Vrnjatchka Banja, the inland spa on the Bosnian frontier, where Mr. James Berry and his wife, Dr. Dickinson Berry, are working, and a double unit of the British Red Cross under Major Banks. With regard to the five Scottish Women's Hospitals it is stated that preparations had long been made for all contingencies, and they were to remain with the Serbian army wherever it went. In case of surprise, however, Dr. Alice Hutchinson's previous experience in the Balkan Wars should stand them in good stead. A nurse, Miss Ruby Loch, who was at the British Farmers' Hospital at Belgrade and has now been invalided home, was wounded on Oct. 6th by a shell which came through the hospital window. Next day nurses and patients were obliged to take refuge elsewhere, and finally the patients were transferred to the American Hospital, and the staff, after walking 11 miles, reached Jagodina, where they took over a Serbian hospital. A Frenchwoman who has just returned to Paris after nursing in Serbia for a year testifies to the equipment of these hospitals: "In all there was plenty, order, and competence. What the English want they get, and when there is any difficulty about red-tape they simply do away with the red-tape."

The Executive Committee of the Scottish Women's Hospitals have received communications from Dr. Mary Blair, who, with Dr. Catherine Anderson, is at present in Salonika in charge of a party of nurses and orderlies recently sent out as relief staff for the Serbian Units of the Scottish hospitals. Dr. Mary Blair reported that valuable work could be done by her party in or near Salonika until such time as they were able to proceed up country to join their respective units, and that the Serbian authorities highly approve, and will be grateful for such assistance as she and her helpers are able to give. The British Consul and the representatives of the British Red Cross medical missions in Serbia also support this course. It is known that certain replenishments of equipment destined for the hospitals are lying at Salonika pending further transport into Serbia. The Executive Committee of the Scottish Women's Hospitals have therefore cabled their sanction to proceed with this work and are immediately dispatching supplementary equipment to enable her to open, and be responsible for, a hospital of 100 beds.

The matron of the Bideford Hospital has collected £60 to endow a "Bideford Hospital Bed" in the Scottish Women's Hospital in Serbia, if this application of the fund still be possible.

EDINBURGH UNIVERSITY.—THE MEDICAL UNIT AND THE WAR.—Figures are now available up to Nov. 1st showing the University of Edinburgh roll of service. The total of 3769 serving in His Majesty's Forces is made up as follows:—Chancellor, Rector, and member of University Court, 3; teaching staff, 40; clerical staff, 6; technical staff, 21; graduates, 2407; undergraduates, 903; alumni, 389. Of that number 104 have fallen in action in various parts of the world. Numerous honours have been won by men who have gone from the University: 9 having gained the Distinguished Service Order, 1 the Distinguished Conduct Medal, 12 the Military Cross, 1 the Distinguished Service Cross, while over 70 have been mentioned in despatches.

The medical unit of the Officers Training Corps at Edinburgh University has issued an appeal to all medical students who, although willing to serve their country at this time, are, for various reasons, compelled to proceed with their studies during the present winter. The appeal calls attention to the claims of the medical unit at this time, recalls the great services which it has rendered in filling the Royal Army Medical Corps, mentions that it is the oldest medical unit in the kingdom, and reminds students that they can render valuable services by keeping themselves fit and in training during the present crisis. Even for medical students whose studies are heavy the claims of the unit are not too severe, being confined for this purpose to two hours' drill weekly, and participation in field operations on Saturday afternoons.

PROFESSIONAL CLASSES WAR RELIEF COUNCIL.—The Professional Classes War Relief Council is doing practical work by coming to the aid of those professional men and women who have suffered through the war, in this way supplementing the activities of other benevolent societies. The centralised forms of assistance given include education of children, training, hospitality, and maternity assistance. Help cannot be given to any applicant who being of military age and fit for service is neither already

serving his country nor enlisted in Army Reserve B, or to those fit for employment on munitions or other war work and unwilling to accept such employment. A number of men ineligible for the army and a few women on the register of the Professional Classes War Relief Council are now being trained to take up work in insurance offices and thus enable others to join the services under Lord Derby's scheme. The expenses of training, and where necessary maintenance, are borne by the council. All who are in sympathy with the work of this war relief organisation are asked to help by contributions and gifts in kind. Funds may be allocated for education, maternity assistance, training for women, training for men, temporary employment, music in wartime, art in wartime, and for special cases. Cheques should be drawn to the order of the Treasurer, The Professional Classes War Relief War Council, 13, Princes-gate, and crossed "Messrs. Coutts & Co."

MILITARY EMERGENCY HOSPITAL CONSTRUCTION.—An address on this subject was given by Mr. A. Saxon Snell, F.R.I.B.A., F.R.San.I., as one of the Chadwick public lectures at the Royal Society of Medicine on Nov. 10th. Mr. John Slater, F.R.I.B.A., Chadwick trustee, was in the chair. The lecturer stated that to meet the emergency of war the War Office had always reckoned upon making use of spare accommodation in voluntary and public hospitals and infirmaries, and, of course, in its own service hospitals. In addition to the conversion of existing buildings, the War Office had also contemplated the erection of temporary emergency hospitals, for which purpose detailed plans had long since been prepared. Such buildings could be erected at short notice, very quickly, and at small cost. The scale of the present war, however, was so large that many civil architects had been called in to assist the War Office in carrying out temporary hospital schemes, and the resulting variation in planning was instructive and interesting. One of the first of these hospitals was the 1st Eastern Hospital at Cambridge, which was remarkable for being designed upon the open-air principle. It represented an act of faith and courage on the part of those who initiated it, amongst whom the lecturer especially mentioned Professor (now Colonel) G. Sims Woodhead. It was designed and carried out by Mr. Charles Skipper, of Cambridge. Open-air wards for use both in winter and summer were by no means new in this country.[1] For instance, Dr. Philip Boobbyer, medical officer of health of Nottingham, had had several in his district for a number of years. In these every kind of disease had been treated (including pneumonia) winter and summer. Methods of construction varied. The War Office model plans provide for a framing of timber, lined on the inside with plaster slabs, and on the outside with corrugated iron; roofs were also finished with corrugated iron. Timber framing lined inside and out with asbestos sheets was another method of construction, and these buildings were more sightly and no less fire-resisting. Rubberoid was used on the roofs. The flooring was of tongued boards and wood joists. At Leicester the walls were of brick and the floors cement. At Shorncliffe, Mr. White had covered his floor with linoleum, than which there was no more satisfactory ward floor. The cost of these buildings varied greatly. The War Office model plan was estimated between £60 and £70 per bed, but the Cambridge, Canadian, and Glasgow hospitals were about £25 per bed. At Leicester the ward blocks only were estimated at the cost of £15 10*s.* per bed.

HOSPITALS IN PORTUGAL FOR BRITISH WOUNDED.—We learn from the *Hospital* that a project has been set on foot in Portugal for arranging hospital accommodation for British wounded from the Dardanelles and from Serbia. Seven Portuguese watering-places have been selected as suitable localities, and the Government has, it is said, offered to make structural alterations of any buildings offered by private generosity in order to fit them for hospital purposes. Hotels, sanatoria, and hospitals are being inspected in order to determine their suitability for such conversion. In addition to this it has been proposed in the Portuguese Parliament that all the public sanatoria and grounds in the Island of Madeira be handed over to the British Red Cross Society for the duration of the war.

[1] THE LANCET, Sept. 19th, 1914, p. 759; June 19th, 1915, p. 1320.

THE INSURED AND MEDICAL PRACTITIONERS ON ACTIVE SERVICE: POSITION IN ABERDEEN.—Insured persons in Aberdeen who desire to change their doctor at the close of the current year must give notice to that effect before Dec. 1st next, and notice has been given by the Aberdeen Burgh Insurance Committee that an insured person whose name is included in the list of a doctor on the panel, who during the current month is holding a commission in the naval or military forces of the Crown, shall not be entitled to select another doctor at the end of the medical year, unless, in addition to giving notice to the committees in the specified manner, he satisfies the Medical Service Subcommittee that he has reasonable grounds for desiring to be removed from the list of the mobilised doctor.

TRANSFUSION: A FRENCH SURGEON'S HEROIC ACT.—Conditions of profound anæmia following on hæmorrhage from wounds have given a new impulse in France to Carrel's method of transfusion by means of a fine silver tube coated with paraffin wax. According to Dr. Bérard and Dr. Lumière, who report on this method in the *Presse Médicale* of Sept. 2nd, the patriotic citizens of Lyons have stormed to register as donors; 150 women presented themselves in a single week. In another case two French soldiers, sick of trench diet, made a delectable omelette of mushrooms which they had discovered. One died in stupor within 24 hours, the other was taken in a state of pulseless collapse to a field ambulance, where immediate transfusion was considered his only chance of recovery. Dr. Raulot Lapointe, an aide-majeur of the first class, at once volunteered as the donor, with the result that the patient promptly recovered. Dr. Lapointe has personal ties in this country, and his noble act has not passed unnoticed here.

GLOUCESTER WORKHOUSE INFIRMARY AND WOUNDED SOLDIERS.—At a special meeting of the Gloucester board of guardians held last week it was unanimously decided to make arrangements for handing over to the British Red Cross Society the recently completed second wing of the new workhouse infirmary. The whole of the institution will now be used for wounded soldiers, as the Red Cross Society has for some time previously occupied half of the building. The Poor-law patients will be removed to the old infirmary again, and in addition two other houses have been taken for them.

AN AMBULANCE TRAIN.—The London, Brighton, and South Coast Railway Company has constructed an ambulance train to the order of the War Office for the use of our troops in France which has been on exhibition at several stations recently. The train is made up of 16 coaches, with a kitchen car, a pharmacy car, ward cars containing 162 cots arranged in tiers of three, and cars for the medical and surgical staff and orderlies. At the end of the train is a car for infectious cases with room for 64 patients. There is an operating theatre with the necessary equipment, and the train is steam-heated and electrically lighted throughout.

THE RED CROSS DECORATION.—A Royal Warrant has been issued extending the decoration as an award to princesses and queens of foreign countries and to any member of the nursing services or persons engaged in nursing duties with the army or navy, whether British subjects or foreigners.

CONCERTS TO WOUNDED SOLDIERS IN EDINBURGH INFIRMARY.—Two concerts were given during last week in the infirmary, one by the members of St. George's United Free Church Choir under the direction of Mr. Alfred Hollins, the organist of the church, and the other under the chairmanship of Mr. T. Aynsley Cook, manager of the Empire Palace Theatre.

TORQUAY SOLDIERS' HOSPITAL.—At the last meeting of the Torquay town council it was decided to increase the accommodation for sick and wounded soldiers at the town-hall, which has been fitted up as a soldiers' hospital, by 50 additional beds.

IT is intended to reopen the old Royal Naval Hospital at Esquimalt in British Columbia for the care of 150 soldiers returned wounded from the war.

OBITUARY OF THE WAR.

BERTRAM CHIENE LETTS, M.B., B.CH. BELF.,

LIEUTENANT, ROYAL ARMY MEDICAL CORPS.

Lieutenant B. C. Letts, who died at Alexandria on Oct. 21st from dysentery contracted in the Dardanelles, was the only child of Professor Letts, of Queen's University, Belfast.

When quite young he saved the life of another boy from drowning at imminent risk to his own, and at school was remembered by one of his teachers as "one of the most manly, pure-minded, and entirely gracious boys whom I have known," and this reputation of unselfish consideration for others seems to have followed him through his university career. He studied at Fettes College, Edinburgh, and after qualifying M.B., B.Ch. at the Queen's University of Belfast he held an appointment at the Smithston Parochial Asylum, Greenock, where he was a favourite with his patients and nurses, and his chief speaks of his "high abilities and attainments." He was a keen yachtsman, belonging both to the North of Ireland Yacht and the Clyde Cruising Clubs. He had married, only two months before his death, Kathleen Whittet, daughter of a former Lord Provost of Perth.

CHARLES BERTRAM MARSHALL, M.D., CH.B. MANCH., D.P.H.,

CAPTAIN, ROYAL ARMY MEDICAL CORPS.

Captain C. B. Marshall, who was on board the *Royal Edward* when she was sunk in the Mediterranean, was 27 years of age and the son of Mr. William Marshall, J.P., of Cheadle Hulme. He was educated at Manchester Grammar School and took his medical course in Manchester, qualifying M.B., Ch.B. in 1909. Although he had no intention of devoting himself to purely scientific pursuits he belonged to that too rare class of medical men who, before embarking upon the practice of their profession, endeavour to obtain a thorough training in the ancillary sciences and some experience in research. In addition to the usual appointments on the infirmary house staff, Captain Marshall had held a demonstratorship of anatomy in the University and received his M.D., with commendation, for an investigation on the gastric movements and the chemistry of the digestive processes. In athletics he was an active member of the University lacrosse club. On the outbreak of war he obtained a commission in the Royal Army Medical Corps, and was attached to the 3rd East Lancashire Field Ambulance, of which he was commanding officer when he left England. When last seen he was standing on the bridge giving orders to his men to keep cool. A brave and generous spirit, he possessed also unusual ability, and had given promise of advancing the science of medicine.

Medical News.

ROYAL COLLEGES OF PHYSICIANS OF LONDON AND SURGEONS OF ENGLAND.—At a meeting of the Comitia of the Royal College of Physicians of London on Oct. 28th, and of the Council of the Royal College of Surgeons of England on Nov. 11th, diplomas of L.R.C.P. and M.R.C.S. were respectively conferred upon the following 105 candidates who have passed the Final Examination of the Conjoint Board in Medicine, Surgery, and Midwifery, and have complied with the necessary by-laws:—

Percy William Lavers Andrew, Middlesex Hospital; Gilbert Alfred Back, B.A. Cantab., and Bernard Francis Bailey, B.A. Cantab., Cambridge University and St. Thomas's Hospital; Robert Townly Bailey, Charing Cross Hospital; Otto Barkan, B.A. Oxon., Oxford University and St. Mary's Hospital; Eric Gordon Barker, St. Mary's Hospital; Mahmud Bayumi, Cairo and London Hospital; George Charles Berg, St. Thomas's Hospital; Christian Frederick Beyers, St. Bartholomew's Hospital; Sohan Lal Bhatia, B.A. Cantab., Cambridge University and St. Thomas's Hospital; Butros Bishara, Cairo and St. Mary's Hospital; *Satish Chandra Biswas, Calcutta and St. Mary's Hospital; Alfred Lang Bodley, B.A. Cantab., Cambridge University and University College Hospital; Margaret Stote Glen Bott, Royal Free Hospital; Gerald Kessick Bowes, B.A. Oxon., Oxford University and St. Bartholomew's Hospital; Alice Dorothea Brooks, Royal Free Hospital; *Eric Francis Buckler, Birmingham University; Charles Hugh Coiclough Byrne, St. Thomas's Hospital; Eric Lauder Caldwell-Smith, B.A. Cantab., Cambridge University and St. Thomas's Hospital; Milton Carrasco, L.M.S. Bombay, Bombay University and University College Hospital; Morley Chadwick, B.A. Cantab., Cambridge University and Guy's Hospital; Vincent Middleton Coates, Cambridge and Bristol Universities; Ronald Campbell Cooke, St. Thomas's Hospital; Eleyathamby Coomaraswamy, Ceylon Medical College and Middlesex Hospital; Stephen Andrew Cornelius, University College Hospital; Thomas Reginald Davies, St. Mary's Hospital; Edward Valentine de Souza, Cambridge University and Middlesex Hospital; David McMurray Dickson, St. Thomas's Hospital; Eric Gordon Dingley, St. Bartholomew's Hospital; Guanayadam Mangananathan Dominick, Madras and Middlesex Hospital; Thomas Hugh Edey, Guy's Hospital; Nassry Gobran El-Gawly, Cairo and St. Bartholomew's Hospital; Ahmed Fahmi El-Hakim, Cairo and London Hospital; †Henry Hawes Elliot, Durham University and Guy's Hospital; Harold Ellis, St. George's Hospital; Hubert Henry Lacey Ellison, St. Bartholomew's Hospital; Cuthbert Lindsay Emmerson, Bristol University and St. Bartholomew's Hospital; Mounir Farag, Cairo and University College Hospital; Victor Feldman, London Hospital; *Jacob Young Ferguson, Kingston University and London Hospital; Ernest Forrester-Paton, B.A. Cantab., Cambridge University and London Hospital; Luis Hornando Garces, London Hospital; Clive Gardiner-Hill, B.A. Cantab., Cambridge University and St. Thomas's Hospital; Paul Currey Gibson, London Hospital; George Turner Gimlette, B.A. Oxon., Oxford University and St. Thomas's Hospital; Basil Graves, B.A. Cantab., Cambridge University and Charing Cross Hospital; Edwin Allan Thomas Green, L.D.S. Eng., Manchester University; Alexander Fitzgerald Grattan Guinness, Guy's Hospital; Honoria Josephine Hanworth, Royal Free Hospital; Constance Hart, M.D. Pennsylvania, Pennsylvania Women's College and Royal Free Hospital; Rainald Heaton, B.A. Cantab., Cambridge University, Guy's Hospital, and Bristol University; Geoffrey Oliver Hempson, University College Hospital; Frank Edmund Higgins, B.A. Cantab., Cambridge University and St. Thomas's Hospital; Philip Hudson, University College Hospital; George William Huggins, M.D. France, Toulouse University and London Hospital; Sydney Colin Warneford Iredale, St. Bartholomew's Hospital; Luis Gregorio Chacin Itriago, M.D. Caracas, Caracas University and St. Bartholomew's Hospital; Eric Llewelyn Ivens, London Hospital; Frederick Nicholas Jayawardene, Ceylon Medical College and Middlesex Hospital; David Saunders Jones, Manchester University and St. Mary's Hospital; James Phillips Jones, Guy's Hospital; Claude Stewart James Kearney, St. Bartholomew's Hospital; Charles Henry Keay, Durham University; Thomas Harold Vessey King, St. Bartholomew's Hospital; Yankel Krupenia, King's College Hospital; Alec Antony Lees, B.A. Cantab., Cambridge and Birmingham Universities; Francis Charles Lees, Birmingham University; James Stuart Leslie, London Hospital; Eldon Munro Litchfield, New Zealand and Guy's Hospital; Maynard Lambert Loveless, Middlesex Hospital; William Bird Loveless, B.A. Cantab., Cambridge University and Middlesex Hospital; Henry Guy Ludolf, Leeds University; Francis Keene Marriott, London Hospital; Henry Naunton Morgan, Bristol University and University College, Cardiff; Hannah Grace Morland, Royal Free Hospital; John Kerr Muir, Middlesex Hospital; Wilfrid Guy Stuart Neely, L.D.S. Eng., Guy's Hospital; William Douglas Newland, Bombay University and Guy's Hospital; Violet Newmarch and Kathleen Hazel Parkinson, Royal Free Hospital; John Frederick Munton Payne, London Hospital; Frederick Porter-Smith, St. Thomas's Hospital; Albert Edward Adrian Poulier, L.M. & S. Ceylon, Ceylon Medical College and Middlesex Hospital; Samuel Reginald Prall, B.A. Cantab., Cambridge University and St. Bartholomew's Hospital; Edward Austin Prichard-Evans, University College, Cardiff, and Middlesex Hospital; Henry Ellis Robinson, St. Bartholomew's Hospital; Laurence Cecil Sebastian Roche, St. Thomas's Hospital; William Walford Salisbury Sharpe, St. Mary's Hospital; Edith Grace Sherwood, Royal Free Hospital; Simon Simons, University College, Cardiff, and St. Mary's Hospital; Gerald Evan Spicer, Cambridge University and London Hospital; Edward Cowper Tamplin, St. Thomas's Hospital; Thomas Joseph Taunton, St. Bartholomew's

Hospital; Richard Roland Htoon Oo Tha, Cambridge University and University College Hospital; James William Tudor Thomas, B.Sc. Wales, University College, Cardiff, and Middlesex Hospital; William Thomas, B.Sc. Lond., St. Thomas's Hospital; William Leslie Thomas, Middlesex Hospital; Harry Cecil Craven Veitch, University College Hospital; Aubrey Dean Vernon-Taylor, L.S.A. Lond., Guy's Hospital; Geoffrey Marr Vevers, St. Thomas's Hospital; Harold Vickers, St. Mary's Hospital; Arthur Reginald Stuart Warden, B.A. Cantab., Cambridge University and St. Thomas's Hospital; John Woollaston Wayte, St. Thomas's Hospital; Philip Hewer Wells, St. Bartholomew's Hospital; Henderson Whyte, London Hospital; and Walton Ronald Wilson, B.A. Cantab., Cambridge University and St. Bartholomew's Hospital.

* Diploma of M.R.C.S. granted Oct. 14th last.

† L.R.C.P. not yet conferred.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—As the result of the Primary Fellowship Examination, held on Nov. 3rd, 4th, and 9th, 34 candidates presented themselves: 74 per cent. were rejected and 26 per cent. were approved. The following are the names and schools of the successful candidates (including one lady, Miss E. C. Lewis):—

Bodh Raj Chaudhri, King's College; Wilfrid Edward Le Gros Clark, St. Thomas's Hospital; Henry Gluckman, London Hospital; Emily Catherine Lewis, London School of Medicine for Women; Charles John MacAuley, M.B., B.Ch., B.A.O. N.U.I., University College, Dublin; Edward D'Arcy McCrea, Trinity College, Dublin; Martin Herbert Oldershaw, University College; John Dudgeon Oliver, M.B., B.Ch., B.A.O. Dub., Trinity College, Dublin; and Simeon Cyril Shaw, Middlesex Hospital.

The Licence in Dental Surgery was conferred upon the following candidates who have passed the requisite examinations and complied with the by-laws:—

Oscar Bullock, Charing Cross and Royal Dental Hospitals; Will Smith Harris, Leeds University; Frederic Amos Jaques, Guy's Hospital; George Francis Maguire, Belfast, Leeds, King's College and Royal Dental Hospitals; and Arthur Norman Paul, Middlesex and Royal Dental Hospitals.

APOTHECARIES' HALL OF IRELAND.—The next examinations for the Licence will commence on the following dates:—Primary examination, Monday, Dec. 6th; Intermediate examination, Part I., Monday, Dec. 13th; Intermediate examination, Part II., Monday, Dec. 20th; and Final examination, Monday, Jan. 3rd, 1916.

MEDICAL MAYORS.—To the list published in our last issue of medical men who have been elected to the mayoral chair should be added the names of Mr. A. Macgregor Sinclair, M.B., C.M. Aberd. (Burnley), and Alderman C. O'Brien Harding, L.R.C.P. Lond., M.R.C.S. (Eastbourne).

A NURSING ENDOWMENT AT CARDIFF.—Sir William James Thomas has offered a sum of £200 to be used as an endowment fund for nursing at the King Edward VII. Hospital, the interest to be applied to the yearly purchase of a gold and silver medal to be awarded to the best nurses of each year.

THE Metropolitan Asylums Board have abandoned a proposal to erect three sanatoria for consumption, as the London Insurance Committee state that the present financial position does not allow the increased expenditure on the patients.

BRISTOL HEALTH COMMITTEE.—At a meeting of this committee held on Nov. 12th Mr. Colston Wintle, M.R.C.S., L.R.C.P., was re-elected chairman. Mr. Wintle has been chairman for 11 years and became a member of the town council in 1897.

ROYAL METEOROLOGICAL SOCIETY.—The first meeting of this society for the present session was held on Nov. 17th at 70, Victoria-street, Westminster, Major H. G. Lyons, D.Sc., F.R.S., President, in the chair. Mr. J. S. Dines, M.A., read a paper on the Mounting and Illumination of Barometers and the Accuracy Obtainable in the Readings, in which he described the method of mounting and illuminating the barometer in accordance with the plan adopted at the Meteorological Office, South Farnborough.

THE ROYAL SOCIETY OF ARTS.—At the Royal Society of Arts, John-street, Adelphi, on Mondays, Nov. 29th and Dec. 6th and 13th, Dr. W. Rosenhain, D.Sc., F.R.S., will deliver the Cantor lectures, his subject being Optical Glass. On Wednesday, Dec. 1st, Dr. A. E. Shipley, D.Sc., F.R.S., Master of Christ's College, Cambridge, will lecture on Insects and War, when the chair will be taken by Sir William J. Collins, K.C.V.O. On Wednesday, Dec. 8th, Lieutenant-Colonel W. A. Tilney will deal with the Art of Finding Your Way at Night without a Compass. The lecture hour in all cases is 4.30 P.M.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

Prevention of Frost-bite.

THE information given by Mr. TENNANT last week in the House of Commons as to the measures taken for the prevention of frost-bite in the British Expeditionary Forces was particularly acceptable to the feelings of the House, having regard to the sudden change of weather. Mr. TENNANT was able to assure the House that careful and complete precautions had been taken, although he did not consider it his duty to make public the exact methods for the prevention of frost-bite upon which reliance will be placed. He stated, however, that they were based upon the advice of the medical and engineering professions, and that the clothing point of view had also been carefully considered.

Insurance Act Finance.

Some fears have been recently expressed, both in Parliament and out of it, that one of the effects of the war has been to render unsound the general financial scheme of the National Insurance Act. An emphatic denial to this view of the situation has been given by Mr. C. ROBERTS, the Representative of the Insurance Commissioners, in a speech in the House of Commons. He did not believe that the general financial scheme of the Act was unsound. That was the advice given to him by his actuarial advisers. Mr. Roberts cited the remarkable fact that since the beginning of the war a striking fall of sickness had occurred, with a corresponding reduction in sickness benefits. He had some interesting remarks on the statement that a decline in revenue hampered the task of the Insurance Committees in fighting tuberculosis. That, the Representative of the Insurance Commissioners admitted, was true to a certain extent. Obviously, if there was no war larger sums could be devoted to the battle against the disease, but it was an absurd exaggeration to suggest that the funds for this purpose were now exhausted; they were nothing of the kind. Apart from the diminution of revenue due to enlistments, there were funds available at the present time. Mr. ROBERTS deprecated alarmist statements on the matter.

Regulations of the Insurance Commission.

On Wednesday, in answer to questions from Sir PHILIP MAGNUS, Mr. C. ROBERTS stated that the new powers introduced at the end of 1914 had not been used, and that a revision under the ordinary powers of the regulations, as from January, 1916, had been necessitated by the new terms of service for chemists. He added that the consequent changes affecting medical men had been carefully devised in view of the special circumstances of the war, and had been fully discussed with representatives of the medical profession.

HOUSE OF COMMONS.

WEDNESDAY, NOV. 10TH.

Discharges from the Army for Disease.

Mr. HOGGE asked the Under Secretary for War whether the War Office had yet adopted any principle applicable to men discharged from the army with disease which the War Office claimed was contracted before enlistment, although passed as medically fit by medical men, whereby they would receive any consideration, and, if so, what did they propose.—Mr. TENNANT answered: These cases will continue to receive, as in the past, the fullest consideration of the Commissioners of Chelsea Hospital and the army medical authorities, but the suggestion that all disease subsequently manifesting itself in a man who has passed the doctor as a recruit should be regarded as due to military service cannot be accepted. The principle on which we have always acted is that where it is proved that the illness or disease is the result of military service a pension, or whatever is the consideration, is given—it may not be a pension but a lump sum. If it is not proved that it is due to military service there is no charge on army funds.

Mr. PRINGLE: Is it necessary for the discharged soldier to prove that the disease is due to military service or does the onus rest upon the War Office to prove the opposite?—Mr. TENNANT: In cases of this kind there is not much onus. What is done is that the Chelsea Commissioners examine the case. It is then subject to revision by the Director-General of the Army Medical Service, and when we come to a decision that the case is due to military service then a grant is given.

Royal Army Medical Corps, Territorial Force.

Sir D. GODDARD asked the Financial Secretary to the War Office whether the decision to promote to the rank of captain all lieutenants of the Territorial Force, Royal Army Medical Corps, who had given six months' mobilised service, with effect from April 1st last, was being carried out, and when

the promotions would be gazetted.—Mr. FORSTER: Yes, sir. The decision was promulgated by Special Army Order of August 5th and has been acted upon. Promotions are carried out immediately on receipt of individual recommendations. The majority of these have already been put forward and have been duly gazetted.

Sensitised Vaccines.

Mr. SUTTON asked the Under Secretary for War whether sensitised vaccines were being or had been used in any part of the British dominions since August 1st, 1914, for the purpose of the inoculation of soldiers against typhoid fever. Mr. TENNANT (in a written answer) replied: No sensitised vaccines for the purpose of inoculating soldiers against typhoid fever have been supplied by the War Office.

The London Insurance Committee and Sanatorium Treatment.

Mr. BOOTH asked the Representative of the National Insurance Commissioners whether he was aware that workers upon munitions who developed consumption through overstrain could not procure immediate treatment in sanatoriums; whether he was aware that there was a waiting list in London of insured persons recommended by the medical officer of several hundred afflicted workers; and whether he had sanctioned the reduction of available beds decided upon by the London Committee at the request of the Insurance Commission.—Mr. C. ROBERTS wrote in reply: I am not aware that there is any foundation for the general statement made in the first part of the question. Perhaps the honourable Member will furnish me with particulars of any specific cases which he may have in mind. As regards the rest of the question, I am informed that there were last month in London 210 insured tuberculous persons awaiting admission to a residential institution. This number shows a reduction on the figures of the preceding two months. The figures must be considered in the light of the fact that hitherto the London Insurance Committee has made no scheme for the general provision of dispensary treatment for insured persons, and consequently there has been abnormal pressure on the accommodation in residential institutions, and the classification of applicants as suitable for treatment in several forms contemplated by the Act has, therefore, been necessarily imperfect. Now that arrangements have been made for the general provision of dispensary treatment the call upon beds in residential institutions should diminish as the dispensary system expands and the Committee will now for the first time be in a position to employ the considerable, but not unlimited, funds available by them to the best advantage in deciding by the exercise of proper discrimination in particular cases which form of treatment is most suitable.

Legal Status of Insurance Committees.

Mr. BOOTH asked the Representative of the National Insurance Commissioners whether his sanction was given to the Leicester Insurance Committee in defending legal proceedings brought by a panel doctor in resisting a surcharge on account of the drug fund; whether the Commissioners had stated to the London Insurance Committee that there was no legal claim on the part of any insured person for sanatorium benefit; whether he was aware that legal proceedings were threatened against the London Committee arising out of such claims; and whether he had taken the opinion of the Law Officers of the Crown upon these questions.—Mr. C. ROBERTS answered: As regards the first part of the question, I would refer the honourable Member to Section 30 of the National Insurance Act, 1913, from which he will observe that an Insurance Committee is a body corporate which may sue and be sued. In reply to the second part, reference was made at a conference between the Commissioners and the London Insurance Committee to the provisions of Section 16 (3) of the National Insurance Act, 1911, which enacts that an insured person shall not be entitled to sanatorium benefit unless the Insurance Committee recommends the case for such benefit. The reply to the third part of the question is in the negative, nor am I aware that any doubt has been suggested as to the interpretation of the subsection referred to above.

Mr. BOOTH: Can the honourable gentleman say whether any communication took place between his department and the Leicester Insurance Committee before legal proceedings were taken?—Mr. ROBERTS: An Insurance Committee may be sued or may sue without reference to the Insurance Commissioners.

Mr. BOOTH: Did negotiations take place between this body and the honourable gentleman's department?—Mr. ROBERTS: No sanction was either asked for or given.

Midwives' Legislation for Scotland.

Major CHAPPLE asked the Prime Minister whether his attention had been called to a memorial in favour of the passing of a Midwives Bill for Scotland as an emergency measure arising out of war conditions; and whether he could see his way to fulfil the wish of the memorialists and the urgent need of Scotland.—Mr. ASQUITH replied: I can only refer my honourable friend to the answer given on Oct. 26th on my behalf by the Minister of Munitions, in which the hope was expressed that this Bill might be proceeded with.

THURSDAY, NOV. 11TH.

Strength of the Royal Army Medical Corps.

Mr. JOYNSON-HICKS asked the Under Secretary for War whether he would give the number of doctors in the Royal Army Medical Corps on the active and Special Reserve lists at the present time, and what was the number in the Territorial Medical Corps; and what was the increase in the figures since May 18th last.—Mr. TENNANT wrote in reply: The total number of medical officers (regulars, retired officers, re-employed, temporary commissioned, Special Reserve, and Territorial Force) is now 9626. There has been an increase of 2599 over the figures I gave on May 19th last. The present number of Territorial Force medical officers is 2474.

Administrative Work in the Army Medical Department.

Mr. J. MASON asked the Under Secretary of State for War whether he would consider the advisability, in view of the shortage of medical officers for the army, of transferring the greater part of the administrative part of the Army Medical Department and Royal Army Medical Corps to laymen and appointing laymen for administrative purposes to the commissioned ranks of the Royal Army Medical Corps.—Mr. TENNANT said in reply: I am afraid that I cannot accept the principle which underlies my honourable friend's question. The work of the administrative officers of the Royal Army Medical Corps is technical work and requires a special education and experience. It cannot, I think, be performed by laymen.

Mr. MASON: Can the right honourable gentleman say how many medical men have been employed in this manner during the period of the war?—Mr. TENNANT: Of course, I cannot answer that off-hand. A large number of the higher officials of the Royal Army Medical Corps are engaged in military work.

Sickness in the Army.

Mr. JOWETT asked the Under Secretary of State for War whether he could inform the House whether the total number of casualties recently given included any number representing deaths and serious incapacity resulting from illness; and, if not, whether he could state what addition should be made to those figures in respect of deaths and serious incapacity from sickness.—Mr. TENNANT replied: The figures given for casualties by the Prime Minister on Oct. 28th last include deaths from all causes of men serving with the Expeditionary Forces or men invalided from them. They do not include any cases of sickness not resulting in death, and the figures for men invalided from the service for sickness as distinct from those invalided for wounds are not readily available.

Enlistment of Pharmacists.

Mr. GLYN-JONES asked the Under Secretary for War whether Lord Lansdowne's Committee had reported on the question of the desirability or otherwise of depleting by enlistment the number of pharmacists available for dispensing for the civilian population; and whether he could now announce the decision of the Government on the subject.—Mr. TENNANT answered: The list of occupations prepared by Lord Lansdowne's Committee does not include pharmacists. Pharmacists who are indispensable in their civil employment should enlist under the Royal Warrant of Oct. 20th, 1915, of which I will send my honourable friend a copy. They will be placed in a group appropriate to their age and marital condition, and can return at once to their civil occupation until their group is called up. If a pharmacist or his employer claims that more time is still necessary, the matter would be one for the local tribunal, who could still further postpone the date of calling up for actual military service.

In reply to a previous question on the same subject, Mr. TENNANT stated that if a pharmacist desired to enlist in a branch of the army other than the Royal Army Medical Corps, he could not well be refused if a vacancy existed in the branch he wished to join. Any pharmacist wishing to join the Royal Army Medical Corps would always be accepted for this corps if a vacancy was available.

Treatment of Tuberculosis and State Economies.

Mr. CURRIE asked the Representative of the National Insurance Commissioners whether the recent circulars of the Local Government Board calling the attention of public bodies to the desirability of economy were intended to apply to Insurance Committees; if so, whether any estimate of economies in response to these suggestions had been received from Insurance Committees; if so, to what figure did they amount; whether such economies were being accompanied by a marked curtailment of sanatorium and other treatment of tuberculosis; and, if so, whether it was in contemplation to continue the full charge for these benefits to assured parties, notwithstanding the partial cessation of tuberculosis benefits under the Act.—Mr. C. ROBERTS replied: The Local Government Board do not supervise the administration of Insurance Committees, but the Insurance Commissioners

have been careful to scrutinise the administrative expenditure of the Committees from the point of view of economy. No administrative economies could, however, affect the amount of funds available for the treatment of insured persons suffering from tuberculosis. These funds are provided by statute, and there is no foundation whatever for the misleading statements to which publicity has recently been given, that the provision of these funds is in danger of cessation. Apart from the temporary diminution in the income of Insurance Committees due to enlistment, the position of insured persons who apply for sanatorium benefit has not in any way been altered to their detriment in consequence of war conditions.

Mr. BOOTH: Is my honourable friend not aware that in London alone there are hundreds upon the waiting list, and that the body which he represents is recommending a reduction of beds?—Mr. ROBERTS: The number of persons in London on the waiting list for treatment in residential institutions is 210. It is not the case that the Insurance Commissioners have done more than recommend the proper classification of applicants for the different forms of treatment which is now rendered possible by the institution of a general scheme of dispensary treatment in London.

TUESDAY, NOV. 16TH.

Administration Work in the Royal Army Medical Corps.

Mr. J. MASON asked the Under Secretary for War whether men of military age having experience of hospital administration work could be utilised in similar work for the War Office instead of joining the combatant ranks.—Mr. TENNANT replied: There are no purely administrative appointments in connexion with military hospitals. The officers in charge of these hospitals must be qualified medical men, as their duties necessitate their acting in that capacity. I would suggest that the gentlemen whom my honourable friend has in mind would do best to join the combatant ranks.

Mr. MASON later asked the Under Secretary for War how many doctors, holding commissions in the Royal Army Medical Corps, were employed on purely administrative work.—Mr. TENNANT replied: There are no purely administrative appointments in the Royal Army Medical Corps. To ascertain the number of Royal Army Medical Corps officers who are doing administrative work in addition to professional work would entail much labour, and I would ask my honourable friend not to press for this information. It may be assumed that the proportion is a large one and includes every commanding officer.

In the course of the debate on the Appropriation Bill,

Mr. MASON raised again the question of the administrative work now being done by medical men in hospitals and elsewhere, saying that doctors ought to be employed entirely on medical work.

Mr. TENNANT: There are no doctors doing nothing but administrative work.

Mr. MASON: A great many of these doctors are doing work which embraces so little of a technical nature that it could be done equally well by laymen. He would like to quote a case. It appeared that there were 16 motor ambulance convoys in attendance on the British army, each comprising 50 motors. Each convoy had three officers of the Royal Army Medical Corps in control. It had been suggested that these doctors had no real opportunity to make use of their medical skill, but their actual work was looking after the control and management of these motors, keeping them in good condition, and looking after the drivers. Such work could be equally well done by laymen who had a knowledge of motors and management of men. There was a great number of medical men doing administrative work in our hospitals, and this might be undertaken by laymen to save the doctors. This was important, because the call for medical men for army purposes was great.

Mr. TENNANT, in reply, said that he was surprised to hear that 48 officers of the Royal Army Medical Corps were employed on duties described as being principally concerned with the management of men and motor-cars. He would make it his business to examine into that statement and see whether any relief could be given to what was described as wastage of valuable material. With regard to hospitals, if laymen could do some administrative work to save the doctor that could properly be made the subject of investigation. He was sure that his honourable friend would not wish that he should be rushed in this matter, and he did not wish to give a pledge which he was not able to perform. When it was said that in the Royal Army Medical Corps there must be many cases where highly skilled officers had subordinate administrative work which a clerk could do as well, he must point out that with a hospital unit they must have a given number of doctors. There might not be enough of the administrative work to employ a clerk. The medical officer might be able to do it quite well with his other work.

Sunday Attendance on Insured Persons.

Mr. TYSON WILSON asked the Representative of the National Health Insurance Commissioners whether his attention had been called to a recommendation of the medical benefit subcommittee of the Lancashire Insurance Committee that an insured person should not call upon the services of a medical practitioner on Sundays except in cases of emergency; whether he would state whether the Insurance Commissioners were consulted on this question; and, if so, whether they were in favour of insured persons being placed at a disadvantage as to medical treatment as compared with uninsured persons.—Mr. C. ROBERTS answered: My attention had not previously been called to the recommendation referred to. I am informed, however, that it was never adopted by the Insurance Committee, and the latter part of the question does not therefore arise.

The Highlands and Islands Medical Service.

Mr. LEICESTER HARMSWORTH asked the Secretary for Scotland whether, when the negotiations between the Highland and Islands Medical Service Board and the doctors for the improvement of medical attendance to the families of insured persons, crofters' farm servants, and others in similar circumstances had been completed, full particulars of the revised scale of reduced fees would be made known in the respective districts; and, in view of the fact that the Medical Service Board had been in existence for over two years, would he say how far the negotiations had advanced and when the result of them might be expected.—Mr. MCKINNON WOOD wrote in reply: The Highlands and Islands Medical Service Board will take steps to make public the arrangements made with practitioners in particular areas so soon as the arrangements in each area are sufficiently advanced to enable this to be usefully done. In regard to the second part of the question a considerable proportion of the doctors in the Board's area have already entered into formal agreements with the Board, and the Board are endeavouring to complete arrangements with all the practitioners before the end of the current year.

BOOKS, ETC., RECEIVED.

ARNOLD, EDWARD, London.
First Aid in the Laboratory and Workshop. By A. A. Eldridge, B.Sc., and H. Vincent A. Briscoe, D.Sc. With a Foreword by Surgeon-General Sir Alfred Keogh, K.C.B. Price 1*s.* net.

BALE, JOHN, SONS, AND DANIELSSON, London.
Pharmacopœia of University College Hospital, 1915. Edited by Charles H. Hampshire, B.Sc. Lond., F.I.C. Price 2*s.* 6*d.* net.
Transactions and Annual Report of the London Dermatological Society. Price 2*s.* 6*d.*
Old London's Spas, Baths, and Wells. By Septimus Sunderland, M.D. Price 7*s.* 6*d.* net.

BELL AND SONS, G., London.
Tuberculosis: A General Account of the Disease, its Forms, Treatment and Prevention. By A. J. Jex-Blake, M.D., F.R.C.P. Price 2*s.* 6*d.* net.

CAMBRIDGE UNIVERSITY PRESS, Cambridge and London.
Food Economy in War Time. By T. B. Wood, M.A., and F. G. Hopkins, M.A., F.R.S. Price 6*d.*

FROWDE, HENRY, AND HODDER AND STOUGHTON, London.
Medical Lectures and Aphorisms. By Samuel Gee, M.D. With Recollections by J. Wickham Legg. Fourth edition. Price 6*s.* net.

KING, P. S., AND SON, London.
Maternity and Child Welfare. By E. J. Smith, Chairman of the Health Committee of the Bradford Corporation. Price 1*s.* net.
Old Age Pensions: Their Actual Working and Ascertained Results in the United Kingdom. By H. J. Hoare, B.Sc., LL.B. With an Introduction by Sir Laurence Gomme, F.S.A. Price 3*s.* 6*d.* net.

LIPPINCOTT, J. B., COMPANY, London and Philadelphia.
International Clinics. Edited by H. W. Cattell, A.M., M.D. Phila., with the collaboration of C. H. Mayo, M.D., and Sir Wm. Osler, Bart., M.D., F.R.S., and others. Vol. III. Price 35*s.* net per 4 quarterly volumes.

LIVINGSTONE, E. AND S., Edinburgh.
Medicine. Part III. (Catechism Series.) Second edition, revised and enlarged. Price 1*s.* net.

MACMILLAN AND CO., London and New York.
Diseases of Nutrition and Infant Feeding. By John Lorett Morse, A.M., M.D. (Harvard Medical School), and Fitz B. Talbot, A.B., M.D. (Harvard Medical School). Price 10*s.* 6*d.* net.

MACMILLAN COMPANY, New York.
The Criminal Imbecile: An Analysis of Three Remarkable Murder Cases. By H. H. Goddard, Director of Research, Vineland Training School. Price 6*s.* 6*d* net.

P. BLAKISTON'S SON AND CO., Philadelphia.
Curschmann's Text-book on Nervous Diseases. By Various Authors. Authorised English edition. Edited by Charles W. Burr, B.S., M.D. Penn. Two vols.

PUBLISHED BY THE COUNCIL OF THE UNIVERSITY OF BIRMINGHAM.
Studies in Anatomy. Edited by Professor Peter Thompson. Price 10*s.* net.

ROCKEFELLER INSTITUTE FOR MEDICAL RESEARCH, New York.
Studies from the Rockefeller Institute for Medical Research (Reprints). Vol. XXI.

TAYLOR AND FRANCIS, Red Lion-court, London.
Calendar of the Royal College of Surgeons of England. Price 1*s.*
University College Calendar (abridged), 1915–1916.

THACKER, SPINK AND CO., London and India.
Tropical Hygiene. By Surgeon-General Sir Pardey Lukis, K.C.S.I., and Lieutenant-Colonel R. J. Blackham, C.I.E., R.A.M.C. Third edition. Price Rs.3.

Appointments.

Successful applicants for vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.

BHATIA, S. L., M.R.C.S., L.R.C.P. Lond., has been appointed Clinical Assistant in the Children's Department to St. Thomas's Hospital.

CAMERON, R. D., has been appointed Resident Surgeon at the Surgical Out-patient Department at the Royal Infirmary, Edinburgh.

CRUICKSHANK, MARY W., M.B., Ch.B. Aberd., has been appointed Temporary Assistant Medical Officer to be Aberdeen School Board.

DICK, JOHN, M.B., Ch.B. Edin., has been appointed Resident Physician at the Royal Infirmary, Edinburgh.

EVANS, A. OWEN, M.B., Ch.B., has been appointed Resident Surgeon at the Royal Infirmary, Edinburgh.

GEPP, MAURICE, L.R.C.P. & S. Edin., L.F.P.S.Glasg., has been appointed Medical Officer of Health for the combined districts of South-West Shropshire.

LANDSBOROUGH, WILLIAM, M.B., Ch.B. Edin., has been appointed Medical Referee under the Workmen's Compensation Act, 1906, for the Sheriffdom of Ayr, to be attached more particularly to the Ayr District.

MACINTOSH, HUGH J., M.B., C.M. Edin., has been appointed Medical Referee under the Workmen's Compensation Act, 1906, for the Sheriffdom of Ayr, to be attached more particularly to the Ayr District.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).
When the application of a Belgian medical man would be considered the advertisers are requested to communicate with the Editor.

BENGAL, INDIA, ASANSOL MINES BOARD OF HEALTH.—Chief Sanitary Officer for Asansol Mining Settlement. Salary Rs. 1200 a month, with house.

BRADFORD, CITY OF.—Two Temporary Female Medical Officers. Salary 3 guineas per week.

BIRKENHEAD, BOROUGH HOSPITAL.—Junior House Surgeon. Salary £180 per annum, with board and laundry.

BRISTOL GENERAL HOSPITAL.—House surgeon for six months. Salary at rate of £175 per annum, with board, residence, &c.

BRISTOL ROYAL HOSPITAL FOR SICK CHILDREN AND WOMEN.—Female House Physician and Anæsthetist. Salary £150 per annum, with board, rooms, attendance, and laundry.

BRISTOL ROYAL INFIRMARY.—House Physicians and House Surgeons. Salary at rate of £120 per annum, with board, apartments, and laundry.

BURNLEY, VICTORIA HOSPITAL.—House Surgeon. Salary £135 per annum, with residence, board, and washing.

BUXTON, DERBYSHIRE, DEVONSHIRE HOSPITAL.—Assistant House Physician for six months. Salary £100 per annum, with apartments, board, and laundry.

CHELSEA HOSPITAL FOR WOMEN.—Anæsthetist. Salary £21 per annum.

CHESTER ROYAL INFIRMARY.—Female House Surgeon and Female House Physician. Salary £115 and £100 per annum respectively, with board, apartments, and washing.

DERBYSHIRE HOSPITAL FOR SICK CHILDREN.—Female Resident Medical Officer for six months. Salary £200 per annum.

DORCHESTER COUNTY ASYLUM, Dorset.—Medical Superintendent. Salary £800 per annum, with house (partly furnished), stables, garden, coals, light, laundry, &c.

DUDLEY, GUEST HOSPITAL.—Senior Resident Medical Officer. Salary £150 per annum, with board, residence, attendance, and washing. Also Assistant House Surgeon for six months. Salary £120 per annum, with residence, board, and washing.

DUNDEE, BALDOVAN CERTIFIED INSTITUTION FOR THE TREATMENT AND EDUCATION OF THE FEEBLE-MINDED.—Resident Medical Superintendent. Salary £400 per annum, with board and lodgings.

HAMPSTEAD GENERAL HOSPITAL, Haverstock-hill, N.W.—Resident Medical Officer for three months. Salary £200 per annum, with usual allowances.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton.—House Physician for six months. Salary 30 guineas.

KIRKBURTON, STORTHES HALL ASYLUM, near Huddersfield.—Locum Tenens. Salary £6 6s. per week, with board, lodging, and attendance.

LEEDS GENERAL INFIRMARY.—Resident Aural Officer. Salary £100 per annum, with board, residence, and laundry.

LEEDS PUBLIC DISPENSARY.—Female Resident Medical Officer. Salary £130 per annum, with board, residence, and laundry.

LIVERPOOL, DAVID LEWIS NORTHERN HOSPITAL.—House Surgeon and House Physician for six months. Salary at rate of £100 per annum, with board.

LONDON TEMPERANCE HOSPITAL, Hampstead-road, N.W.—Assistant Resident Medical Officer for six months. Salary at rate of £120 per annum, with board, lodging, and laundry. Also Assistant House Surgeon (non-resident) for six months. Salary at rate of £105 per annum.

LONDON THROAT HOSPITAL, 204, Great Portland-street, W.—House Surgeon. Salary £50 per annum.

MANCHESTER CITY.—Coroner. Salary £800 per annum.

MANCHESTER, HULME DISPENSARY, Dale-street, Stretford-road.—House Surgeon. Salary £250 per annum, with apartments, attendance, coal, and gas.

MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN, Park-place, Cheetham Hill-road.—Female House Surgeon. Salary £120 per annum, with apartments and board.

MANCHESTER ROYAL INFIRMARY.—Resident Surgical Officer, unmarried, at Convalescent Hospital, Cheadle. Salary £225 per annum, with board and residence.

MIDDLESBROUGH, NORTH RIDING INFIRMARY.—Female Resident Surgeon. Salary £120 per annum, with board, apartments, and laundry.

MILROY LECTURES ON STATE MEDICINE AND PUBLIC HEALTH.—Milroy Lecturer for 1917.

NEW HOSPITAL FOR WOMEN, Euston-road, N.W.—Female House Physician, Two House Surgeons, Obstetric Assistant, and Pathologist, all for six months. Also Senior Clinical Assistant for Out-patient Department, Tuesdays and Fridays, and Anæsthetist.

NORFOLK, Diss, 2 1ST HIGHLAND MOUNTED BRIGADE FIELD AMBULANCE, 2, Mount-street.—Two Medical Officers.

PAISLEY INFECTIOUS DISEASES HOSPITAL.—Resident Medical Officer. Salary £200 per annum, with board, washing, and attendance.

PEMBROKE COUNTY.—Female Assistant County Medical Officer and Assistant School Medical Officer. Salary £300 per annum, with £100 a year for travelling expenses.

PUTNEY HOSPITAL, Putney Common, S.W.—Resident Medical Officer. Salary £150 per annum, with residence, board, and laundry.

ROYAL LONDON OPHTHALMIC HOSPITAL, City-road, E.C.—Third House Surgeon. Salary at rate of £50 per annum, with board and residence.

ST. MARY'S HOSPITAL, Paddington, W.—Assistant Ophthalmic Surgeon for five years.

SHEFFIELD, JESSOP HOSPITAL FOR WOMEN.—Senior and Junior Female House Surgeons, unmarried. Salary £100 and £80 per annum respectively, with board, residence, and laundry.

SOUTH LONDON HOSPITAL FOR WOMEN, 88–90, Newington-causeway, S.E.—Assistant Physician and Temporary Assistant Surgeon, latter appointment for six months.

SOUTHAMPTON, FREE EYE HOSPITAL.—House Surgeon. Salary £100 per annum, with board, lodging, and laundry.

SOUTHAMPTON, ROYAL SOUTH HANTS AND SOUTHAMPTON HOSPITAL.—Junior House Surgeon. Salary £120 per annum, with rooms, board, and washing.

SURREY COUNTY COUNCIL.—School Dentist. Salary £300 per annum.

THROAT HOSPITAL, Golden-square, W.—House Surgeon.

VICTORIA HOSPITAL FOR CHILDREN, Tite-street, Chelsea, S.W.—Senior Resident Medical Officer. Salary £250 per annum, with board, lodging, and washing. Also House Physician. Salary £200 per annum, with board, lodging, and washing.

WALTON-ON-THAMES, NEW ZEALAND MILITARY HOSPITAL.—Two Resident Medical Officers. Salary 7 guineas per week, with board and residence.

WEST HAM AND EASTERN GENERAL HOSPITAL.—House Physicians. Salary £120 per annum, with board, residence, and washing.

WIGAN, ROYAL ALBERT EDWARD INFIRMARY AND DISPENSARY.—Female House Surgeon. Salary £150 per annum, with board, apartments, and washing.

YORK COUNTY HOSPITAL.—Resident Medical Officer. Salary £150 per annum, with board, residence, and laundry.

Births, Marriages, and Deaths.

BIRTHS.

BOYD.—On Nov. 9th, at Notting-hill, the wife of Captain Sidney Boyd, F.R.C.S. Eng., temporarily serving with R.A.M.C. in Alexandria, of a daughter.

CUNDELL.—On Nov. 14th, at Marlborough-road, Tue Brook, Liverpool, to Dr. and Mrs. H. J. Cundell, a son.

QUINE.—On Nov. 13th, at Laurel Bank, Bowdon, Cheshire, the wife of Surgeon William J. Aitken Quine, R.N.V.R., of a daughter.

ROE.—On Nov. 6th, at Brampton Ash, Northamptonshire, the wife of Lieutenant C. Watney Roe, R.A.M.C., of a son.

MARRIAGES.

BINNING—CLARKE.—On Nov. 11th, at St. Andrew's, Chelsea, Captain Robert Binning, I.M.S., to Dorothy Anne, youngest daughter of W. E. Clarke, Barrister, and the late Mrs. Clarke, of Roydon, Parkstone, Dorset.

DONNELL—SKINNER.—On Nov. 11th, at the Parish Church, Burton Hastings, Warwickshire, Joseph Hollins Donnell, Captain, R.A.M.C. (T.), to Ada Marian, younger daughter of James Skinner, of Lucknow, Maidenhead.

SCOTT—ELSWORTH.—On Nov. 13th, at St. Mary's Parish Church, Swansea, Captain John Scott, M.B. Edin., I.M.S., Indian Expeditionary Force, France, to Maynie, only daughter of R. C. Elsworth, M.D. Edin., F.R.C.S. Eng., Major, R.A.M.C. (T.), of Swansea.

STARR—WADE.—On Oct. 28th, at Peshawar, N. India, Vernon H. Starr, M.B., B.S. Lond., C.M.S. Hospital, to Lilian Agnes, daughter of the late Rev. T. R. Wade, C.M.S.

WATTS—WEBB.—On Nov. 13th, at St. Giles's, Camberwell, Captain Hugh Watts, M.D., I.M.S., to Dorothea Ann, younger daughter of Mr. and Mrs. William Webb, of Dulcote, Lordship-lane, S.E.

DEATHS.

BOXALL.—On Nov. 7th, suddenly, at Ingleside, Abinger Common, Robert Boxall, M.D. Camb., formerly of Portland-place.

DALY.—On Nov. 10th, at Amhurst-road, Hackney Downs, N.E., Frederick Henry Daly, M.D. Irel., J.P., aged 73 years.

GILBERT.—On Nov. 12th, at Cantley, Tunbridge Wells, Edward Gillett Gilbert, M.D. Durh., aged 75 years.

GORDON-HOGG.—On Nov. 10th, at Esmond-gardens, Bedford Park, Chiswick, London, W., William Bruce Gordon-Hogg, M.D. Edin., H.M. Coroner for Western District of Middlesex, in his 66th year.

JEX-BLAKE.—On Nov. 7th, Bertha Jex-Blake, M.B. Edin., daughter of the late Dean of Wells and of Mrs. Jex-Blake, of Ennismore-gardens, S.W.

MAGUIRE.—On Nov. 12th, Robert Maguire, M.D., F.R.C.P., aged 58 years.

WARD.—On Nov. 13th, at Glengariff, Marshall's-road, Sutton, Surrey, Martindale Cowslade Ward, M.D. Aberd., aged 74 years.

WRIGHT-GRANT.—On Nov. 12th, suddenly, at Edinburgh, John Wright-Grant, M.B., C.M. Edin., late of Woburn Sands, aged 55 years.

N.B.*—*A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

THE USE OF THE ONION IN HYDRARTHROSIS.

WE have received a communication from Dr. G. Dicorato, medical officer of the Ouro Preto gold mines, Passagem, Brazil, recounting his experience of the beneficial action exercised by the fleshy scales forming the onion bulb when applied locally in the course of hydrarthrosis, particularly of the knee. He had been incidentally brought to make a trial of this bulb when, on being called to an urgent confinement case, he found on the woman's right knee an application of onion scales on account of a fall sustained some days previously. The swelling subsided in a week; afterwards the knee was quite normal. On inquiring among some of his colleagues none had heard of this empirical treatment. He therefore took occasion to make a study of it in 12 cases, of which 4 were tuberculous osteo-arthritis and 8 were hydrarthrosis of different joints, following generally on a traumatism. In the cases of articular tuberculosis the local treatment gave no apparent results; in the other cases the result was excellent and the cure rapid. The application was of the simplest, the fleshy scales of the onion bulb being placed face downwards all around the joint and kept in place by a gauze bandage or even by strips of old linen.

The onion, garlic, and leek have long been used in domestic or kitchen pharmacy, although sometimes to use garlic was thought vulgar and common. Scientific opinion 80 years ago on the use of allium may be gathered from the following extract from the "Manual of Pharmacy," by William Thomas Brande, F.R.S. (1833): "The ordinary properties of garlic are too well known to require any particular enumeration, and its medical qualities are not such as to detain us long; indeed, for which of its merits it is retained in the Pharmacopœia it is difficult to say. The diseases in which garlic has been praised are: Obstinate ague, by Bergius: dropsical affections, by Sydenham; and in scurvy as preventive and curative, by Dr. Lind. A boiled clove of garlic, or a garlic poultice, is a common domestic application to indolent tumours and tardily-proceeding boils; it is sometimes applied to the soles of the feet to cause what is called revulsion from the head or breast; and has long been celebrated as an anthelmintic when boiled in milk. As an external stimulant, a bulb or clove of garlic is not only rubefacient but will blister the skin." More than a century ago a hot roasted onion was applied to the groin in children suffering from retention of urine. Many references to the use of garlic and the onion have been published in THE LANCET, and we stated in a recent annotation on "Kitchen Pharmacology" that the former contains a powerful sulphur oil, allyl sulphide, which may account for its being credited with allaying the pains of rheumatism.

WOMEN AND THEIR WORK.

THE "Women and their Work Exhibition," which remains open at the Prince's Skating Rink, Knightsbridge, till Nov. 27th, is primarily intended to illustrate the various fields of labour now open to women; but there is a side of the exhibition which, from a national point of view, is of greater importance than any exposure of an industrial position can be. We refer to the education of the public as to what is necessary to be done and what is being done to conserve the young life of the country and help prospective mothers to preserve their health. Among the societies represented are the National Milk Hostels Committee, 67, Jermyn-street, St. James's, W., which supplies milk direct from the farm to the poor children of London and destitute expectant mothers; the Invalid Kitchens of London, 32, Victoria-street, S.W., which among other work supplies to poor women recovering from childbirth special diets when required; and the Women's Imperial Health Association, 7, Hanover-square, W., which, by means of pamphlets and leaflets, seeks to inculcate the principles of hygiene and health among the public. The National Food Economy League, 3, Woodstock-street, W., is another body whose object is sufficiently indicated by its title, and the baby incubators have served as a useful object-lesson for the public. In another direction the exhibit of the Women Police Service deserves notice, inasmuch as it shows a promising record, while the useful work which it has done where women and children are concerned is becoming more and more recognised by the authorities. The address of the Women Police Service is 3, Little George-street, Westminster.

LOOSE NECK-WEAR.

WE have received a long letter from Dr. Walter G. Walford, South Hampstead, attributing the remarkable vitality which he states himself to be experiencing at the age of 77 years and 6 months to his habit of using only "very loose neck-wear." Dr. Walford has written to us on previous occasions on this subject and does not consider that we place the right value upon his idea, which he believes to amount to the discovery of an important secret. He adds, "I have been trying my utmost to knock it into the heads of doctors, but so far with but little result. They made excuses and would not apply it. Doctors were like politicians and would not see the obvious; they could think of nothing but their rubbishing physic." It looks as though other people besides ourselves, possessing medical equipment, have found Dr. Walford's claims extravagant.

"HOW TO REAR A BABY."

A "war-time" edition has appeared of Mrs. Frank Stephens's useful pamphlet on "How to Rear a Baby" (London: Horace Marshall and Son. Pp. 32. Price 1*d.*), which has reached a circulation approaching half-a-million. The pages have been submitted in proof to many medical men and other competent authorities for advice and criticism, and the book has been adopted by the health officers of many large towns for distribution to mothers by their lady health visitors. The directions are simple and straightforward and may have a useful place in combating maternal ignorance.

Anæsthesia.—The advice is certainly dangerous, but it is doubtful whether our correspondent's student recollections prove the peril of that whiff of chloroform so common to the plots of novelists and dramatists.

Parent.—The statutory course is five years. Practically it cannot be shortened, and generally the student requires at least six years.

Interested.—We cannot publish the letter without knowing the name of its author, which, of course, need not be published.

Beta.—A registered medical practitioner would be acting wrongly to take out a patent in the way our correspondent suggests.

Interested has omitted to enclose his name.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY, Burlington House, London, W.

THURSDAY.—Papers:—Mr. M. Flack, Mr. O. W. Griffith, and Mr. L. Hill: The Measurement of the Rate of Heat Loss at Body Temperature by Convection, Radiation, and Evaporation.—Prof. A. J. Brown and Mr. F. Tinker: The Rate of Absorption of Various Phenolic Solutions by Seeds of Hordeum Vulgare and the Factors Governing the Rate of Diffusion of Aqueous Solutions across Semi-permeable Membranes.—Mr. F. Kidd: The Controlling Influence of Carbonic Dioxide. Part III., The Retarding Effect of Carbon Dioxide on Respiration (communicated by Dr. F. F. Blackman).—Mr. E. W. A. Walker: The Growth of the Body in Man. The Relationship between the Body Weight and the Body Length (Stem Length) (communicated by Prof. C. S. Sherrington).

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MEETINGS OF SECTIONS.

Monday, Nov. 22nd.

ODONTOLOGY (Hon. Secretaries—F. R. Smyth, F. N. Doubleday): at 8 P.M.

Paper:
Mr. J. Howard Mummery: Comparative Studies in Calcification.

N.B.—Members of other Sections interested in Histology and Physiology are specially invited to attend.

Tuesday, Nov. 23rd.

MEDICINE (Hon. Secretaries—Charles R. Box, W. Cecil Bosanquet): at 5.30 P.M.

Adjourned Discussion:
On Paratyphoid Fever, to be re-opened by Sir William Osler, F.R.S.

Thursday, Nov. 25th.

BALNEOLOGY AND CLIMATOLOGY (Hon. Secretaries—Chas. W. Buckley, J. Campbell McClure): at 5.30 P.M.

Presidential Address by Dr. William Gordon.

NEUROLOGY (Hon. Secretaries—H. Campbell Thomson, C. M. Hinds Howell): at 8 P.M.

CLINICAL MEETING.

Demonstration of Cases.

Members who desire to show cases are asked to communicate as soon as possible with Dr. Campbell Thomson, 34, Queen Anne-street, or Dr. Hinds Howell, 145, Harley-street.

Friday, Nov. 26th.

STUDY OF DISEASE IN CHILDREN (Hon. Secretaries—J. D. Rolleston, A. S. Blundell Bankart, Sidney Gilford): at 4.30 P.M.

Cases:
Dr. T. R. Whipham: Cerebral Deficiency.
Mr. Sydney Stephenson: (?) Juvenile Tabes.
Dr. E. Cautley: (1) Friedreich's Disease; (2) Primary Optic Neuritis.
Mr. A. S. Blundell Bankart: (?) Myositis.
Dr. J. L. Bunch: Ringed Eruption.

Specimens:
Dr. E. Cautley: Polydactyly with Deformity.
Dr. J. D. Rolleston: Single Pelvic Kidney.

EPIDEMIOLOGY AND STATE MEDICINE (Hon. Secretaries—G. S. Buchanan, William Butler): at 8.30 P.M.

Paper:
Dr. J. Middleton Martin: An Analysis of Gloucestershire Statistics, 1901-10.

HUNTERIAN SOCIETY, National Hospital for Diseases of the Heart, Westmoreland-street, W.
WEDNESDAY.—4 P.M., Clinical Afternoon. All members of the medical profession are invited to attend.

HARVEIAN SOCIETY OF LONDON, Stafford Rooms, Titchborne-street, Edgware-road, W.
THURSDAY.—8.30 P.M., Discussion on the Organisation of the Medical Profession for War Service (opened by Dr. J. Galloway and Dr. C. Buttar).

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF PHYSICIANS OF LONDON, Pall Mall East.
TUESDAY—5 P.M., Goulstonian Lectures:—Dr. G. Holmes: Acute Spinal Lesions, with Special Reference to those of Warfare. (Lecture III.)

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.
MONDAY.—Clinics:—10.30 A.M., Surgical Out-patients (Mr. E. Gillespie). 2.30 P.M., Medical Out-patients (Dr. T. R. Whipham): Gynæcological Out-patients (Dr. Banister). 3 P.M., Medical In-patients (Dr. R. M. Leslie).
TUESDAY.—2.30 P.M., Surgical Operations (Mr. Carson). Clinics:—Medical Out-patients (Dr. A. G. Auld); Surgical Out-patients (Mr. Howell Evans); Nose, Throat, and Ear Out-patients (Mr. C. H. Hayton). Radiography (Dr. Metcalfe). 3.30 P.M., Medical In-patients (Dr. A. J. Whiting).
WEDNESDAY.—Clinics:—2.30 P.M., Throat Operations (Mr. C. H. Hayton). Children Out-patients (Dr. T. R. Whipham); Eye Out-patients (Mr. R. P. Brooks); Skin Out-patients (Dr. H. W. Barber). 5.30 P.M., Eye Operations (Mr. R. P. Brooks).
THURSDAY.—2.30 P.M., Gynæcological Operations (Dr. A. E. Giles). Clinics:—Medical Out-patients (Dr. A. J. Whiting); Surgical Out-patients (Mr. Carson); Radiography (Dr. Metcalfe). 3 P.M., Medical In-patients (Dr. R. M. Leslie). 4.30 P.M., Clinical Demonstration:—Dr. J. Metcalfe: War Fractures—X Ray Demonstration.
FRIDAY.—2.30 P.M., Surgical Operations (Mr. Howell Evans). Clinics:—Medical Out-patients (Dr. A. G. Auld); Surgical Out-patients (Mr. E. Gillespie); Eye Out-patients (Mr. R. P. Brooks).

THE THROAT HOSPITAL, Golden-square, W.
MONDAY.—5.15 P.M., Special Demonstration of Selected Cases.
THURSDAY.—5.15 P.M., Clinical Lecture.

ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN, 49, Leicester-square, W.C.
TUESDAY.—6 P.M., Dr. W. Griffith: Eczema and Inflammatory Diseases of the Skin.
THURSDAY.—6 P.M., Chesterfield Lecture:—Dr. M. Dockrell: Acne, Real and "So-called."

For further particulars of the above Lectures, &c., see Advertisement Pages.

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITOR," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention should be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale, and advertising departments of THE LANCET *should be addressed "To the Manager." We cannot undertake to return MSS. not used.*

MANAGER'S NOTICES.

TO SUBSCRIBERS.

WILL Subscribers please note that only those subscriptions which are sent direct to the Proprietors of THE LANCET at their Offices, 423, Strand, London, W.C., are dealt with by them? Subscriptions paid to London or to local newsagents (with none of whom have the Proprietors any connexion whatever) do not reach THE LANCET Offices, and consequently inquiries concerning missing copies, &c., should be sent to the Agent to whom the subscription is paid, and *not* to THE LANCET Offices.

Subscribers, by sending their subscriptions direct to THE LANCET Offices, will ensure regularity in the despatch of their Journals and an earlier delivery than the majority of Agents are able to effect.

THE COLONIAL AND FOREIGN EDITION (printed on thin paper) is published in time to catch the weekly Friday mails to all parts of the world.

ALTERATION OF INLAND SUBSCRIPTION RATES.

OWING to the alteration in the Inland Newspaper Postal rate, the postage on each copy of THE LANCET will in future be 1*d.*, and sometimes 1½*d.*

The revised Inland Subscription rates are:—

One Year	£1	3	3
Six Months	0	13	8
Three Months	0	7	0

The rates for the Colonies and Abroad (thin paper edition) will be as usual:—

One Year	£1	5	0
Six Months	0	14	0
Three Months	0	7	0

Subscriptions (which may commence at any time) are payable in advance. Cheques and Post Office Orders (crossed "London County and Westminster Bank, Covent Garden Branch") should be made payable to the Manager, Mr. CHARLES GOOD, THE LANCET Offices, 423, Strand, London, W.C.

TO COLONIAL AND FOREIGN SUBSCRIBERS.

SUBSCRIBERS ABROAD ARE PARTICULARLY REQUESTED TO NOTE THE RATES OF SUBSCRIPTIONS GIVEN ABOVE.

The Manager will be pleased to forward copies direct from the Offices to places abroad at the above rates, whatever be the weight of any of the copies so supplied.

NEWSPAPERS FOR NEUTRAL COUNTRIES.

THE Secretary of the War Office has issued the following order:—

The public are informed that on and after Saturday, November 6th, newspapers, magazines, books, and other printed publications (other than trade circulars) will not be sent forward to neutral European countries unless posted direct from the office of publishers or newsagents who have obtained permission from the War Office for this purpose. Persons desiring to send newspapers, &c., to neutral European countries should, therefore, give their orders for execution to publishers or newsagents who have obtained such permission.

The Publisher of THE LANCET has obtained the required permission of the War Office, and he will forward copies direct from the Office to any neutral country on receipt of instructions.

METEOROLOGICAL READINGS.

(Taken daily at 9.30 a.m. by Steward's Instruments.)

THE LANCET Office, Nov. 17th, 1915.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rain-fall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Nov. 11	29·606	S.W.	0·60	65	48	39	39	40	Cloudy
,, 12	28·880	E.	0·40	61	47	40	48	48	Foggy
,, 13	29·220	W.	...	66	45	39	37	40	Cloudy
,, 14	29·610	W.	...	67	42	34	33	36	Fine
,, 15	29·840	S.W.	0·23	55	42	32	32	32	Fine
,, 16	30·004	N.E.	...	67	43	32	35	35	Cloudy
,, 17	30·280	N.W.	...	67	43	32	32	34	Overcast

Communications, Letters &c., have been received from—

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